

PACKAGING

THE CANNERS MAGAZINE FOR DECISION-MAKERS/NOVEMBER 1988

PACK EXPO '88 SHOW GUIDE

Special Report:
Accurate Labeling

Splitting Lines
Boosts Efficiency

How Do You Compare?
1988 Salary Survey

New Ways To Use
Rigid Plastics



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PACKAGING NEWS

Mobil's OPP Film Capacity Boosted 20% By Plant Expansions

Added capacity at two plants will total 30 million pounds

Mobil Chemical Co. has announced two plant expansions that will increase the firm's oriented polypropylene (OPP) film capacity by 20 per cent in North America. A just-completed expansion at Stratford, Conn. and the one getting underway at Belleville, Ont. will provide 30 million pounds of extra capacity annually.

The firm recently added a fifth OPP manufacturing line at Virton, Belgium, and is now constructing a new line at its plant in Brindisi, Italy. Mobil's worldwide OPP capacity will total over 280 million pounds per year at the completion of the current expansion program.

Refrigerated Meals Focus of CAP '88

Presentations deal with total industry effort

The challenge of supplying freshly-made entrees, dinners and salads to American consumers will be the focus of presentations at CAP '88, the 4th International Conference on Controlled/Modified Atmosphere Vacuum Packaging. The event is scheduled for Dec. 1-2, 1988, at the Harrison Conference Center in Glen Cove, N.Y.

The crux of the papers to be given, according to conference sponsor Schotland Business Research, is that progress in the refrigerated meals category will call for a total distribution, processing and marketing effort. Among the speakers will be Dr. Nabil El-Hag, vice president of technical R&D at Culnova Group. For more information on the conference, circle Reader Service No. 425.

Canned Food Sales Up For Third Straight Year In 1987

Meat, specialty foods lead with 7.3% gain

Sales for all categories of canned food rose for the third year in a row in 1987, according to the Canned Food Information Council.

Although canned fruits posted a healthy 4 per cent sales gain in 1987, the canned meat and specialty food category was up over 7.3 per cent, credited to the success of ethnic dishes. In addition, canned food manufacturers introduced more than 120 new items in the category in 1987, mainly through line extensions.

Paperboard Sales To Exceed \$26 Billion By 1992, Says Study

But U.S. corrugated and paperboard box industry will face stiff challenges

Intense competition from other containers, high raw materials prices, and advances in printing technology will all have an impact on the corrugated and paperboard box industry in the U.S. However, with sustained moderate growth, sales will exceed \$26 billion in 1992. These are among the conclusions in a recently released business research report from The Freedonia Group.

According to the study, corrugated and solid fiber boxes will continue to be the

mainstay of the box industry, accounting for 73 per cent of shipments in 1992, or 328 billion square feet, as compared to 298 billion square feet in 1987. Growth will be led by developments in coatings, laminations, adhesives and inks. Graphics innovations will allow corrugated and solid fiber boxes to continue to evolve from shipping containers to effective marketing tools at the point of purchase.

Folding paperboard box shipments will reach 3.3 million tons, experiencing slightly faster growth due to improvements in packaging design, including graphics, coatings and tamper resistance. Above-average growth is expected in fast and convenience food packaging, and set-up paperboard boxes will continue an impressive recovery.

The 76-page report on corrugated and paperboard boxes, is available for \$800 from The Freedonia Group, Inc. For more information circle Reader Service No. 413.

U.S. CORRUGATED AND PAPERBOARD BOX SALES (million dollars)

Item	1987	1992	2000	% Annual Growth 1987-1992
Corrugated & Paperboard Box Sales	20002	26400	41700	5.7
Northeast	4745	6200	9275	5.5
North Central	6079	7750	11700	5.0
South	5885	7900	12950	6.1
West	3293	4550	7775	6.7

Source: The Freedonia Group, Inc.

Battelle To Offer Microwave Package Software Program

Multiclient program will speed design process

A software program for use in designing microwave food packages will be developed by Battelle in a newly offered multiclient program. Called Micropak, the program will operate on IBM XT, AT and compatible computers.

A computer-assisted analysis technique will aid designers in understanding the effects of alternative packaging designs, materials, food formulations and placements, and specific temperature-control devices such as susceptors and shielding.

"To assure that the program meets the needs of participating companies, all clients will be asked to offer their suggestions as to the foods and packaging materials of greatest interest. These . . . will serve as the basis for developing the Micropak software," said Dr. William McComis of Battelle. For more information, circle Reader Service No. 423.

Huntsman Announces Thailand Joint Venture

Other Eastern-Rim projects to follow

Huntsman Chemical Corp. has announced approval by the Thailand Board of Investment, a division of the Ministry of Industry, to proceed with Mitsubishi Corp. and a private firm in Thailand named TOA on a polystyrene joint venture.

The new venture will build a 25,000 metric ton (50-million pound) polystyrene facility in Map Ta Phut, Thailand. This facility will manufacture crystal and impact grades, and is expected to be operational by the fourth quarter of 1990.

"Our participation in this project fulfills, in part, our effort to supply our customers' product on a global basis," says Jon M. Huntsman, Jr., director of international business. "Other Eastern-Rim projects include focus in China, India and a plant expansion in Taiwan," he added.

RECYCLING NEWS

'Raiders' Search For Usable Trash At Midnight

Moonlighters collect it, store it, sell it

"We call ourselves night raiders," says 25-year-old John Stratz, program director for National Container Recovery, Chicago. "We try to go to companies and tell them we want to do something for them. But they turn their back. So we go through the alleys and we pick up stuff during the night."

The "stuff" that Stratz and his staff of four remove from dumpsters all around town consists of just about anything that's recyclable.

Items loaded into his company's two aged trucks include used containers made of glass, plastic, paperboard—"anything that can be defined as a pack-



Truck loaded, John Stratz of National Container Recovery prepares for a trip to his warehouse, where the materials will be stored until buyers can be found.

age," says Stratz. It all goes to a warehouse for storage until buyers can be found. And Stratz says he has found buyers for almost everything.

For example, expanded poly-

styrene beverage cups, which no one else seems to know what to do with, are taken in by Stratz's raiders and shredded for sale to companies that use the material as cushioning.

Stratz says he hasn't collected anything yet that he's had to throw away. Enough is collected and sold that his company is breaking even in its first year. "We can pay for the gas in the truck and the employees," he says.

"I didn't go into it for profit," he says. "Everyone else is worried about their profit. But there's no need for that. There's a need to get this stuff out of the waste stream right now." He goes on, "We want to get people to realize that there might be some market for it."

National Container Recovery provides participating companies with containers for recyclables and collects the materials free of charge. Even so, says Stratz, "A lot of companies didn't accept us at the beginning. I don't know why. It just bewilders me." Participating companies have allowed Stratz to involve employees to the extent that they bring recyclable materials from home for pickup by National Container Recovery trucks.

Everyone who works at National Container Recovery is employed full-time elsewhere. The team meets at midnight to begin its runs. "We finish about five in the morning," Stratz says.

Glass Group Offers Curbside Guide

Booklet examines cost/benefit factors

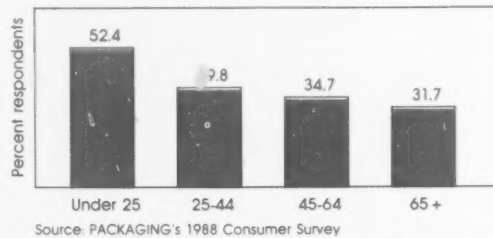
A study released recently by the Glass Packaging Institute details the economics of curbside collection. "Comprehensive Curbside Recycling: Collection Costs and How to Control Them" examines the expenditure revenue factors involved in such programs.

Prepared by Resource Conservation Consultants, an Oregon-based environmental consulting firm, the study looks at curbside programs already in place in the United States. It also provides worksheets for use by local governments in estimating costs and benefits of new recycling programs.

Says Lewis D. Andrews, Jr., GPI president, "Although each jurisdiction is unique, there are elements common to all curbside collection programs."

To obtain a copy of the report, write the Glass Packaging Institute, 1801 K St., Suite 1105-L, Washington, D.C. 20006.

WHO THINKS PACKAGING MANUFACTURERS SHOULD FUND RECYCLING?



Consumers Differ On Program Funding

Half under 25 want package makers to pay

The percentage of consumers who say they feel manufacturers of packaging materials should pay for recycling differs by age group in a recent survey.

PACKAGING magazine asked consumers "Who should fund recycling programs?" and gave them the following choices: governments, manufacturers of packaging materials, manufac-

turers of products packaged in those materials or private trash-collection agencies. The highest percentage of consumers responding to the survey said packaging manufacturers should pay.

More than 52 per cent of consumers under age 25—the highest share of any age group—said they favored that source of funding. Only 31.7 per cent of consumers age 65 and up said they favored funding by manufacturers of packaging materials.

A full report appeared in our June issue.

State Hits Aluminum Recycling Target Early

Rate of can return in California exceeds goal

The recycling rate for aluminum cans has reached 67 per cent in California, according to a state Department of Conservation report released recently. In doing so, aluminum cans have become the first beverage container type to surpass the state target of 65 per cent, which was established less than a year ago.

If the current rate is maintained, as the DOC report predicts it will be, aluminum cans will avoid an increase in the state-mandated redemption fee. But Richard Pedranti, president of the Aluminum Can Recycling Association of California, says his nonprofit group of aluminum and can manufacturing companies has a larger goal. "It is certainly our ultimate objective to reach 100 per cent recycling."

1988 SALARY SURVEY FOCUSES ON PACKAGING FUNCTIONS

The average packaging professional makes nearly \$49,000, but feels neglected by corporate management

Robin Ashton, Editor in Chief

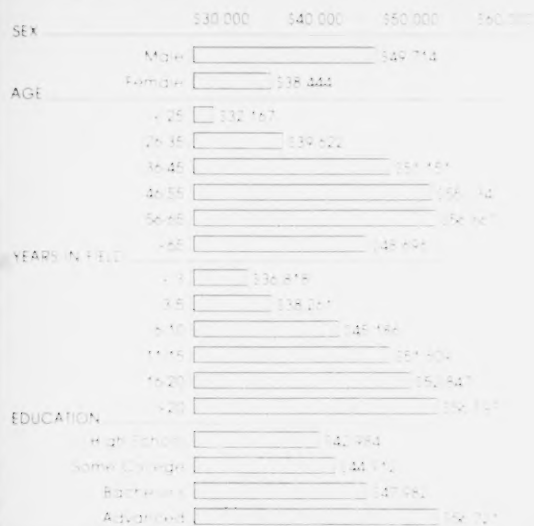
Packaging professionals appear to be paid fairly well, but that doesn't mean they are happy. Nearly half say they are underpaid. Of perhaps greater importance, many feel they do not receive the recognition for their jobs deserved.

These are among the findings of the latest *Package Week* Salary Survey. In addition to extensive demographic and compensation information, the survey also probes packaging professionals' opinions on a wide variety of industry issues, including package recycling and degradation, labeling and federal regulations.

A change in the survey's base makes it impossible to compare figures from this year's survey with past salary studies. In past years, surveys were mailed to a cross-section of *Package Week* circulation list. This year, the mailing focused on those in critical packaging functions. Questionnaires were sent to 4,000 regular members of the Packaging Institute International and SPIPE, the Society of Packaging Professionals.

For example, average salary for the total base was \$48,677 this year, compared to \$44,179 last year. It seems unlikely that

THE BOTTOM LINE: WHO MAKES HOW MUCH BY SEX, AGE, EXPERIENCE & EDUCATION



THE BOTTOM LINE: WHO MAKES HOW MUCH BY TITLE, DEPARTMENT & INDUSTRY



The average woman makes 77 percent as much as a man

those responding received a 10 percent raise during a year of relatively low inflation.

Rough comparisons do show a great deal of consistency, however.

For example, those based in the West continue to command the highest salaries, followed by professionals working in the Northeast, the South and the North Central region. Average salary in the West was \$51,791 per year, compared with \$45,233 in the North Central region, a differential of nearly 15 percent.

The industry in which a packaging professional is plying his trade also has an effect on compensation.

Those employed by companies manufacturing cosmetics and toiletries average \$53,870 a year, while those packaging engineering or scientific products receive only \$46,812 annually.

Other high-ranking industry groups include food, consumer soft goods and drugs and pharmaceuticals.

Analyzed in this fashion, salaries appear to be tied in part to the importance of packaging from a marketing standpoint.

Women's salaries lag

Substantial differentials continue to be tied to sex. The average male respondent to the survey earns \$49,714

per annum, the average female, \$38,444. Women make 77.3 percent of the average man's salary. This is exactly the differential reported in the 1987 survey.

The sex differential is tied to a number of factors. Women are less likely to work in positions with management responsibility. Only 3.9 percent of respondents identifying themselves as "primarily a manager" are women. Only one of the women responding is a vice president of packaging; only five carry a director of packaging title.

Women are more likely to be employed as buyers, technologists or packaging/proj-

THE AVERAGE PACKAGING PROFESSIONAL

Sex	Male (86%)
Age	42
Region	North Central (34.8%)
Education	Bachelor's Degree (57.1%)
Years In Packaging	14.4 Years
Years In Present Job	8.2 Years
Department	Engineering (23.9%) Packaging Design (23.4%)
Title	Packaging/Project Engineer (24.3%) Manager of Packaging (22.1%)
No. Of People Supervising	13
Percent Of Time In Packaging Activities	75%
Average Travel Days Per Month	3.5

TECHNOLOGY, COSTS AND CONSUMERS DRIVE CHANGE

The rapid change in technology and materials, and the cost of implementing these new developments are cited as the leading factors driving change in the packaging industry.

FACTOR	PERCENT CITING*
Technology Improvements	42%
Cost Control	38%
Consumer Demands	37%
Material Improvements	31%
Marketing Strategy	30%
Competitive Conditions	26%
Federal Regulations	24%
Profit Improvement	24%
Machinery Improvements	11%
Company Policies	6%
Personnel/ Training	4%

* Respondents asked to cite three.

ect engineers.

On average, women also have less experience in the field than men. The average male respondent has been in packaging for 8.6 years, the average female only 3.9 years.

Getting no respect

Despite an average salary approaching \$50,000 a year, nearly half of the sample, 49 percent, feel underpaid.

This dissatisfaction appears to be tied to more than just salaries. A significant number of respondents answering an open-ended opinion question groused about the lack of management support or appreciation for the packaging function.

"The packaging industry is like Rodney Dangerfield," says one respondent. "It gets no respect."

A number of factors are cited that contribute to this perception. The ever-present passion for cost control is mentioned by many.

Many also believe this attitude hurts rather than helps company profits.

But while many grouse, a few see improvement in the perception of packaging's role within the corporate structure.

"The most important change in the industry has been a shift from viewing packaging as a commodity to a value-added approach," says a respondent. "Packaging is not a necessary evil, but a marketing and quality asset."

PLEASE RATE THIS ARTICLE

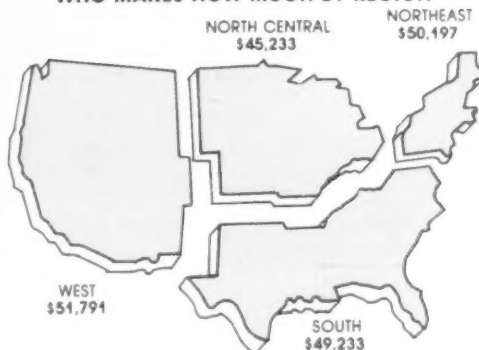
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ROBIN ASHTON
Editor in Chief

Packaging professionals clearly feel underappreciated, in spite of being well paid compared to most Americans. They also have a keen sense of their social responsibility in regards to waste creation. Undoubtedly, many will play a key role in solving the waste problem.

WHO MAKES HOW MUCH BY REGION

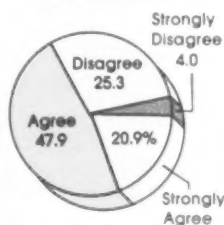


As in past surveys, packaging professionals in the West lead the pack in remuneration, while those in North Central region trail by a substantial amount.

ABOUT THE SURVEY

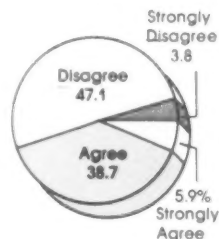
This year's Salary Survey was changed to focus more precisely on those in packaging-specific job functions. Past surveys were mailed to a cross-section of PACKAGING readers. This year, the survey was mailed to 4,000 regular members of PI I and SPHE. The change had several effects, including a significant increase in response rate. Forms were returned by 983 people, for a response rate of nearly 25 percent.

IS JOB EXPERIENCE MORE IMPORTANT THAN FORMAL PACKAGING EDUCATION?



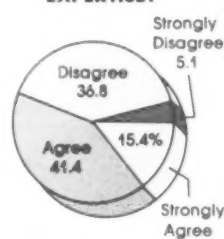
A formal packaging education may be well and good, but a strong majority of practicing professionals believe on-the-job training is more important.

MOST IMPORTANT NEW TECHNOLOGY DEVELOPS IN EUROPE, NOT U.S.



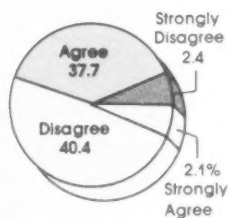
Those who believe the U.S. still leads Europe in the development of new packaging technology just slightly outnumber those who don't, 50 percent to 45 percent.

ARE MANAGEMENT SKILLS BECOMING MORE IMPORTANT THAN PACKAGING EXPERTISE?



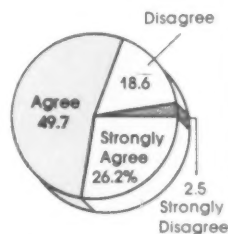
A majority of packaging professionals agree management skills have become more important than packaging expertise in doing their jobs.

CONTROLLED-ATMOSPHERE PACKAGING IS NOT YET A VIABLE TECHNOLOGY IN U.S.



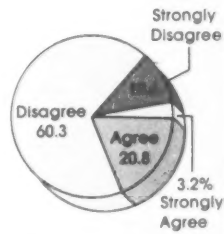
As a group, the sample is about evenly split on the viability of controlled or modified packaging. Food company employees are slightly less sure.

RECYCLING PROBLEMS ADVERSELY AFFECT PLASTIC CONTAINER'S FUTURE



Packaging professionals are keenly aware of the problems of plastic recycling. Nearly 8 in 10 believe such problems will limit the plastic container's future.

GOVERNMENT & INDUSTRY HAVEN'T DONE ENOUGH TO PREVENT TAMPERING



A strong majority, more than 7 in 10, believe federal agencies and industry groups have done enough to keep the consumer safe from product tampering.

PACKAGING

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Group Vice President

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PACKAGING NEWS

P&G Tests 100% Recycled PET For Cleaner Bottle

Makes joint announcement with bottle molder Plastipak

Packaging giant The Procter & Gamble Co. will test market a 15-ounce Spic & Span Pine cleaner bottle made from 100 percent clear post-consumer recycled polyethylene terephthalate (PET).

Charles Wosaba, manager of packaging

R&D for P&G, made the announcement flanked by personnel from bottle molder and joint developer Plastipak Packaging Inc. The molder has already made several batches of the bottles, and a "market trial" will begin in early 1989. Test geography and protocol are still being developed, according to P&G.

The Spic & Span bottle was chosen because it is small, molds and production know-how are already available, and it was judged that product interactions with the recycled PETE would be minimal.

Plastipak is reportedly still "firming up" its supply of recycled resin and processing conditions. Current suppliers were not named.

Major Firms Scramble To Find CFC Alternatives

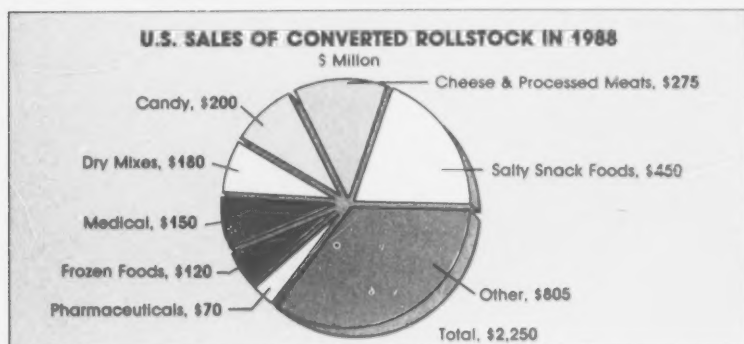
DuPont, Allied-Signal announce substitution plans

Amid continuing concern over the effect chlorofluorocarbons (CFCs) are having on the Earth's ozone layer, the top two domestic producers of CFCs have made separate announcements regarding production of alternative products.

DuPont Co. has said it will invest more than \$25 million to build the first commercial-scale plant to produce a product known as HFC-134a. The substance is reportedly an alternative for CFC-12, which is used for refrigeration and air conditioning applications. However, the plant's capacity will be used primarily for expanded market development, and to provide data for a future "world-scale commercial facility" for HFC-134a, according to the firm. In March 1988, DuPont announced that it will phase out production of CFCs.

Meanwhile, Allied-Signal Inc. said it will increase by 75 percent the number of scientists working on finding and developing non-ozone depleting substitutes for CFCs. Personnel at the firm's Buffalo research facility, dedicated to fluorine-based chemistry, are focusing their research efforts on the development of a full line of "environmentally safe alternatives to CFCs", according to Allied-Signal.

The firm had announced its collaborative research effort with Atochem, Europe's largest CFC producer, also in March of this year.



Rollstock Converters Could Be Takeover Targets, Study Says

Thirteen U.S. firms have owner of retirement age, market is growing

A study just released by Kline & Co. examines the U.S. converted rollstock market as a corporate raider might see it. The \$2.25 billion U.S. market, growing at 5 percent per year, offers attractive but often overlooked "investment opportunities," according

ing to the study.

Most suppliers of converted rollstock hold secure positions in distinctly different end-use markets, says the report. However, some of the best are easily overlooked, since 27 of the 39 profiled by Kline are privately held, and 11 are small operations of large corporations. Only one public firm has all of its sales in converted rollstock.

The Kline report targets several of the privately held companies as attractive acquisition targets, identifying at least 13 firms with a principal owner of retirement age.

This 120-page report is the first in a series entitled *Investment Opportunities in Packaging, 1988-1989*. For details circle Reader Service No. 417.

NFPA Fights Country-Of-Origin Labeling Proposal

Relabeling will hurt food processors, industry group claims

Imposing additional country-of-origin (CO) labeling requirements on food products would be costly, unnecessary and protectionist, an executive of the National Food Processors Association (NFPA) told a Congressional panel recently.

Testifying before the House Committee on Ways and Means Trade Subcommittee,

NFPA executive vice president for public affairs Lawrence T. Graham said attempts to require the CO on labels of products that have been "substantially transformed" through processing in the U.S. serves to "punish U.S. manufacturers and workers and it acts as a serious disincentive to the American food industry."

Graham argued that the actions of the U.S. Customs Service will trigger costly relabeling efforts for the food industry, particularly for those companies that frequently change the source of their ingredients depending on price and availability. Further, he said, CO labeling will discourage processors from developing new products, many of which necessarily include foreign ingredients.

Quaker Sells Can-Making Equipment to Heekin Can

Closes Indianapolis facility

Heekin Can Inc. continues its policy of acquiring assets from self-manufacturers with its recent purchase of can-making assets from Chicago-based Quaker Oats. Heekin bought the can-making equipment from Quaker's Indianapolis facility and the food processor closed the plant in November. No purchase price was announced.

Cincinnati-based Heekin will continue to supply cans to Quaker's Gatorade/Van Camp processing facility under terms of a multi-year agreement. A Quaker spokesperson cited excess capacity and necessary capital investment as key factors in the firm's decision to close the plant.

In its third-quarter profit report, Heekin commented on the acquisition: "As in last year's purchase of the Stokely USA can plant, we expect this acquisition to increase our revenues by approximately 15 percent. Heekin plans to continue to use a growth strategy based on acquisitions of self-manufacturers' can-making assets."

5 Food Packages Consumers Love

There's a good reason so many new products appear in one of these five package forms—shoppers love them

By Melissa Larson Senior Editor

Consumers are a fickle lot, says the common wisdom. They buy whatever is depicted in the latest commercial, and will switch brands at the drop of a coupon.

But they do stick with packages they like. We've found that food marketers in several specific categories, where the competition is particularly keen, have hedged their bets by introducing the product in one of five package types that have become consumer favorites. Three of them are relatively new to the supermarket: the single-serve aseptic cup, the dual-ovenable paperboard tray, and the multilayer film bag. The other two are old stand-bys which still compete strongly in many categories: the metal can and the wide-mouth glass jar.

To better understand why these five food packages are favored by shoppers, it helps to take a look at our recent Consumer Survey (June 1988). Consumers were asked to rate which package criteria are most important when they are

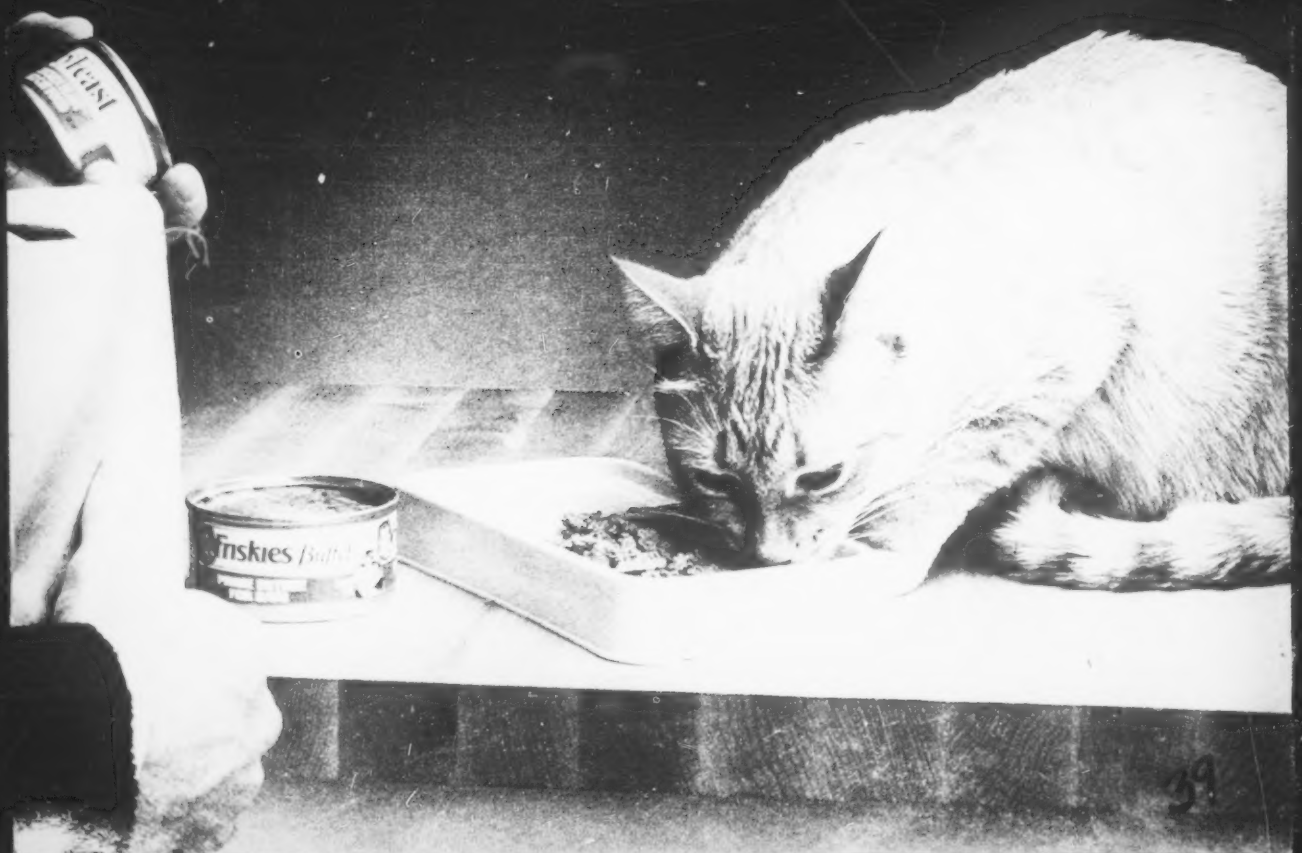
15 TOP-SELLING CANNED FOODS

Category	Millions of Dollars
Soups	1,781.8
Tuna	1,404.9
Pasta Dishes	503.1
Beans/Pork & Beans	470.3
Corn	449.0
Green Beans	370.3
Tomatoes	365.8
Evaporated Condensed Milk	358.4
Tomato Sauce	332.5
Apple Sauce	288.1
Peaches	284.3
Pineapple	278.9
Chili	278.4
Hams & Bulk Meats	269.4
Kidney & Misc. Beans	254.3

Source: Canned Food Information Council. Does not include information on pet foods.



Pet owners know that the metal can, complete with easy-open pull tabs, provides a barrier to sight and smell—and a good value.



Clarity of
glass shows off
premium sauce
ingredients

Fancy sauces can be microwave-heated and served right from the wide-mouth glass jar.

considering purchasing food products.

Flavor preservation, value for the money and tamper-evidence, in that order, are the three most important package attributes shoppers look for. (See chart on opposite page.)

Convenience of resealing, storing and opening are ranked next, in order of importance. Microwavability ranks below these first six, at least for the time being.

Processing ease and safety do influence packagers' container choices, of course. But our five "hot" packages also do an above-average job of

fulfilling consumers' top purchasing criteria.

Metal cans

Of course consumers buy soup in them. But what other marketers choose the metal can? And what is the source of its enduring consumer appeal?

The answer lies partially in the metal can's great flexibility. Aluminum and steel, from No. 10 down to the 4-ounce size, printed or labeled, each type has found a niche.

Top consumer purchasing criteria for food products packaging provide more

clues. For flavorful, hearty foods that can stand up to re-tort, the canned product is an extremely good value for the consumer, and you can't get much more tamper-evident.

For the new wave of higher-priced, "gourmet" pet foods, metal cans are the overwhelming choice. Since most pet owners would rather not see or smell kitty's dinner until it's time to serve, the can's opacity and sturdy barrier are assets. And the new array of single-serve sizes, with pull-tab lids, means no opener is needed, and no storing of smelly leftovers.



Marketers of canned meats and meat spreads are loyal users of metal cans, for many of the same reasons. This canned food category was one of the fastest-growing in 1987, according to the Canned Food Council—although it still hasn't cracked the top 10. (See chart.)

Canned ethnic foods, including everything from refried beans to hot-pepper sauces, are spicing up the prepared-foods aisle. These strongly flavored specialty products are becoming more mainstream, propelled by trends toward cooking-at-home and sampling different cuisines.

For those without the time or inclination to search out the fresh ingredients, prepared ethnic sauces, rice and pasta dishes are quick and easy alternatives.

Wide-mouth glass jars

Dismissed as clunky, expensive and prone to shatter just a few years ago, glass packages are back. The glass industry has energetically stressed the flavor retention qualities, microwavability and recyclability of glass packages.

Appetizing pasta sauces and pasta-and-sauce entrees in wide-mouth jars have opened up a whole new category catering to the different sauce tastes of pasta-loving middle America.

Being able to see the various ingredients, quickly heat the contents in the microwave, pour them from the wide-mouth container, and easily replace the screw-on cap to store the leftover sauce, has enormous consumer appeal.

It's no wonder that marketers of every kind of pasta or cooking sauce, from simple and hearty spaghetti pour-overs to exotic and upscale clam and Alfredo sauces, turn to the wide-mouth glass jar. In fact, the appearance of premium sauces has helped, by association, to establish the glass jar as a premium food package.

Chicago's tony retailer



Consumers love the convenience of cooking and eating in the dual-ovenable paperboard tray.

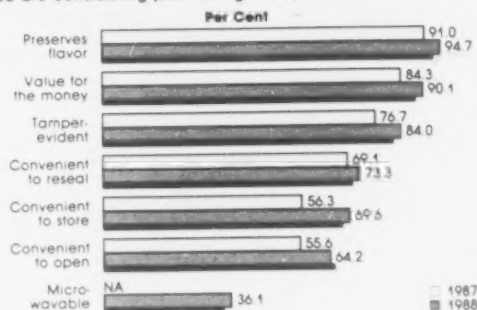
Marshall Field's, which has developed a wide variety of private label gourmet foods, recently introduced its Lone Star Grill line of Tex-Mex sauces, packaged in glass jars.

Also, many regional and gourmet items use the combination of a glass jar and a metal screw cap to invoke the "home-canned" appeal of fresh ingredients and an original recipe. Perhaps the best example is International Gourmet Specialties' Classico line, which uses actual canning jars to evoke a home-made image.

And Carnation Co. is testing Contadina Premium Pasta Sauces on the East Coast in glass jars. Television ads tout the sauces' premium ingredients, which are readily visible above and below the wraparound label.

MOST IMPORTANT PACKAGE FEATURES—FOOD

How important are each of the following characteristics when you are considering purchasing food products?





Single-serve cups have kids eating better at school and home

from the beginning—and the category has taken off.

Tennessee-based Union Foods has introduced its PictSweet Express single-serve frozen vegetables in Federal Paperboard's Dio-Tray—a one-piece dual-ovenable tray with similar graphic possibilities and cooking procedures.

In addition to appreciating the appetizing graphics and the convenience of cooking in, and eating out of, the same package, early supplier research indicates that consumers favor the paperboard trays because they perceive them as being less "package-intensive."

In other words, there is less packaging to open and then throw away later.

Further, it is well documented that consumers consider frozen vegetables a good value, and realize that they retain more of their nutrients than canned vegetables.

Single-serve cups

Single-serve plastic cups for applesauce, yogurt and pudding have led the new-product charge to the supermarket this fall. (See November 1988 issue, "Rigid Plastics Respond to Key Food Markets.") Targeted as a back-to-school convenience for busy parents, these cups can be found in the refrigerated section and in the canned fruit and snack aisles.

Marketers of these products are capitalizing on consumers' desire for better nutrition on the run, whether the cups are carried in lunchboxes or briefcases.

Although consumers are willing to pay more for the perceived nutrition and convenience of these products, multipacks of various types provide at least a perception of better value.

Flavor preservation of these aseptically-processed plastic cups also appears to be acceptable. Consumers are accustomed to yogurt in plastic cups, and they don't appear to find the pudding products very different in

Aseptic plastic cups in multipacks are the latest way for children to eat better away from home.

Upscale sauce flavors include Alfredo, spinach and Parmesan, Italian clam, tomato and mushroom, tomato and garlic, and tomato and Italian sausage.

Dual-ovenable paperboard

As recently as three years ago, the frozen vegetable display was dominated by flat stacks of poly bags and paperboard boxes, the contents of which were dumped into boiling water on the stove.

Today, the frozen vegetable shelf facing is a more colorful place, and single-serve vegetables have become something of a consumer impulse item—thanks in part to the single-serve, dual-ovenable paperboard tray. Frozen vegetables in all varieties have entered the microwave

generation in this convenient, cook-in package.

Budget Gourmet was the first brand to package its entrees and side dishes in Westvaco's Ovenware trays. Consumers were attracted to the slick lid graphics, and found that the package was convenient to microwave, eat from and throw away. Reportedly the line achieved annual sales of \$100 million in its first year.

Then Stokely USA introduced Stokely's Singles, single-serve vegetable side dishes packaged in two- and four-packs of the paperboard trays, separated by a perforation. Although the multipacks presented some in-store challenges at first, consumers liked the single-serve frozen vegetable concept

taste from the home-mixed variety.

Applesauce in plastic cups may suffer the most from comparison with the taste of product in glass jars—but shoppers apparently feel the convenience of a disposable single-serving is worth any slight reduction in flavor.

Heat-sealed lidding on plastic cups provides a degree of tamper-evidence, as well as space for full-color graphics and selling language. Paper carriers for some multipacks also provide graphic possibilities.

The brand names associated with these single-serve multipacks enhance consumer acceptance. Known names such as Del Monte, Hunt's, Dannon, Swiss Miss and Light 'n Lively inspire consumer confidence in the quality and safety of these products.

Flexible film bags

Metallized, opaque or transparent film bags for snacks are great examples of packaging that upgrades consumer perception of the product.

Shoppers are willing to pay more money for less product, as long as the glitzy four-color bags keep the great tastes, and the crunch, intact. U.S. domestic sales of salted snacks reached the \$8 billion mark for the first time in 1987, according to the Snack Food Association.

Flavor and aroma preservation for these snacks are the strong suit of multilayer bags. And most major brands use gas to puff up the bag and give it that pleasingly plump appearance.

Heavy promotional spending by major brand marketers, and the truly stunning design and process printing of the shiny bags have helped lure consumers to their first taste of Cajun chips, white cheddar popcorn and ranch-flavored pretzels.

Recloseable features are starting to appear on a few smaller or regional snack brands, but it remains to be seen whether that is a signifi-

cant-enough consumer hot-button to make a difference. Once consumers get their first crunch of some new flavor, they may prefer to eat the entire bag at once.

In the search for an edge in new food product introductions, smart marketers are finding that consumers can indeed be loyal—to a package.

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Outstanding	460
Above Average	461
Average	462
Below Average	463

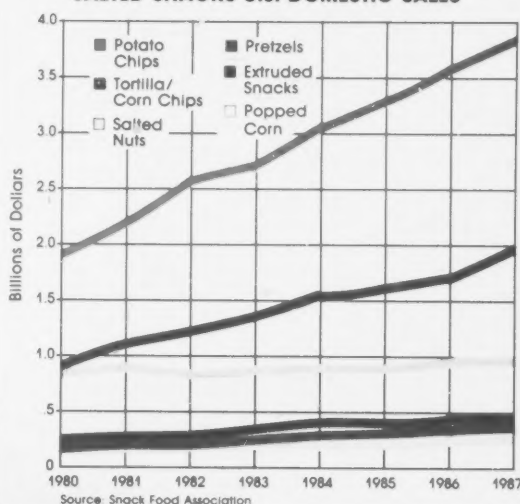


MELISSA LARSON
Senior Editor

"Think of your favorite food packages, and why you like them. Some may be high-technology

containers that do a difficult job, and others are old standards which offer value and security. Food marketers are paying more attention to your attitudes on packaging."

SALTED SNACKS U.S. DOMESTIC SALES



Great taste and glitzy graphics are the strong suit of multilayer film snack bags.

PACKAGING

THE CAHNERS MAGAZINE FOR DECISION-MAKERS/JANUARY 1989

CHOOSING THE RIGHT CODING SYSTEM

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VOLUME 34 NUMBER 1

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NEWS

Dial Sells Can Plant To Silgan

Buyer will continue to supply cans, lids to Dial

The Dial Corp. recently announced it has agreed to sell its Fort Madison, Iowa can manufacturing facility to Silgan Containers Corp. of Burbank, Cal. Terms were not disclosed.

The Fort Madison facility employs approximately 100 persons, and manufactures aluminum cans and easy-open lids for processed foods, used primarily at Dial's food plant located nearby. Under terms of a supply agreement, Silgan will fulfill Dial's requirements for containers and lids.

Dial, a wholly owned subsidiary of The Greyhound Corp., says it is selling the plant to redeploy capital to its growing stable of new products. Silgan operates 14 facilities, producing cans and folding cartons throughout the U.S.

Tin Mill Producers Group Touts Rebirth of Steel Beverage Cans

Industry will tackle antiquated image

The steel beverage can is back—but the industry still has a lot of work ahead to change the antiquated image of the container, and of steel in general. That was the focus of a presentation given at the recent Interbey show in Atlanta by Charles G. Carson, marketing, development and technology manager with USS, a division of USX Corp.

Carson pointed out some of the recent advancements made in the steel industry. It takes only 4.6 manhours now to produce a ton of steel—a 50 percent reduction over previous requirements. Using new continuous-cast steel-making technology, rejection rates are only 5 percent overall, with some months having only a 1 percent rejection rate for finished containers. Capital investment by the steel industry is also up, reaching \$7.8 billion in 1988 for equipment such as statistical process control systems and high-speed inspection.

Carson also hinted at increased market share for steel cans in the soft-drink and beer industry. Currently, steel cans account for only 8 percent of all cans. By 1990, the Tin Mill Products Group of the American Iron and Steel Institute projects a doubling of that figure, to 16 percent.

Steel-can recycling is moving forward as well. The newly formed Steel Can Recycling Institute expects to recycle 400,000 tons of steel cans through about 25 different facilities nationwide in 1988. For example, the Gary, Ind., USS plant recycled 10,000 tons last year, which is only 25 percent of its total recycling capacity. Also, technological advances have made the recycling of bi-metal steel cans easier.

Student Design Awards Include Work Experience

U.K.'s Starpack contest offers student internships

For industrious U.K. package design students, a winning design may mean not only prize money and a trophy—but a temporary job. Three work experience internships are among the prizes offered in the 1988 Starpack Student Design Awards, organized by the U.K.'s Institute of Packaging.

In addition to cash prizes totalling over

£1800 (\$3150), the internships are a practical incentive in the well-established competition, open to all potential packaging designers from colleges throughout the U.K.

"Its aim is to encourage young people to address the real-life demands of the market in all aspects of packaging design, and its long term objective is to contribute to the raising of standards of commercial packaging design in the U.K.," says a statement by Graphic Partners of Edinburgh, the sponsor of one of the internships.

Gold, silver and bronze awards, and special prizes, will be presented during Pakes 88, set to take place in Birmingham in April.

Plastic Industry Growth Continues As It Focuses On Challenges

Estimated overall use rises 5.3% in '88, packaging use remains stable at 30.4%

The plastics industry scored its sixth consecutive record year in 1988, though the pace of growth slowed from 1987's performance.

Industry-wide sales and captive use rose 5.3 percent in 1988, according to preliminary figures released by the Society of the Plastics Industry at a press conference in Washington, D.C. December 1. The industry grew 11.1 percent in 1987.

"The plastics industry maintains a firm commitment to growth," said SPI president Larry L. Thomas. While acknowledging the industry also faces increasing public challenges, "I'm optimistic even about the challenges," Thomas said.

Thomas, along with SPI government affairs vice president Lewis Freeman and Donald Shea, executive vice president of the recently formed Council for Solid Waste Solutions, detailed the many challenges facing the industry and outlined what the groups are doing to address solid waste and other issues.

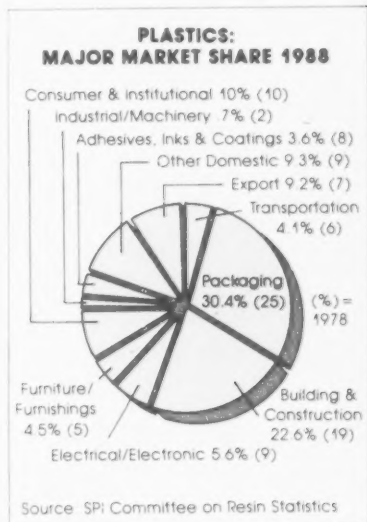
Industry-wide production was estimated to grow at a 6.6 percent clip in 1988, according to Robert Snyder, chairman of SPI's Committee on Resin Statistics and a market research associate at Dow Chemical Co.

French Firm To Buy American National Can

Pechiney S.A. makes \$3.86 billion deal with Triangle

France's state-owned Pechiney S.A. will acquire Chicago-based American National Can Corp., the world's largest packaging firm, by buying Triangle Industries Inc. for \$3.86 billion and then selling the firm's smaller, nonpackaging business back to Triangle's majority owners for \$225 million.

Pechiney, the world's third-largest alumi-



Materials showing above-average growth last year included polypropylene and thermoplastic polyesters, including PET. Both low- and high-density polyethylenes recorded less than average growth, with supply problems blamed in part for the slower growth.

Packaging's percentage of the industry's volume remained steady in 1988 at 30.4 percent.

num producer, will thus own American National Can, the world's largest can producer. It provides about 25 percent of the world's food and beverage cans, and consumes 600,000 tons of aluminum per year.

The French firm will pay \$56 per share for Triangle's shares, 63 percent of which are owned by majority owners Nelson Peltz and Peter W. May. Pechiney will also assume Triangle's whopping \$2.6 billion debt, incurred when May and Peltz created American National Can through a series of leveraged buyouts managed by Drexel Burnham Lambert.

Triangle's stock jumped from \$10.37 to \$46.25 per share after the merger was announced.

RECYCLING NEWS

Partners To Reclaim Plastic Bottles

Construction industry seen as big customer

A new recycling operation formed by The Dow Chemical Co. and a Canadian corporation could begin removing at least 50 million pounds of HDPE and PET annually from the waste stream by 1990, according to a Dow spokesperson. The spokesperson adds that the amount of post-consumer bottles recycled each year by the new company could quickly reach 100 million pounds or more.

Domtar Inc. of Montreal, Que., and Dow signed a letter of intent in September to form a jointly owned plastics recycling company. A pilot plant could be up and running in 1989; design and construction of a full-scale



Containers of HDPE and PET like these are likely to find new use in construction materials as a result of cooperation between Dow Chemical and Canada's Domtar.

commercial plant could be completed as early as 1990.

Key to the operation is a proprietary recycling process which Dow says will result in particularly pure HDPE and PET—perhaps pure enough to obtain FDA approval for use in foods

packaging. Whether used for foods or not, the spokesperson notes, new containers made from old seem likely to be well received by packagers. "Some of our customers have told us that being able to label a bottle as made from recycled plastic

would be a good idea."

Resin made from the reclaimed bottles, says the spokesperson, "will have a high market value. It will be competitive with other resins."

In addition, the Dow source says, Domtar has identified 20 uses for recycled HDPE and PET in the construction industry, to which the Canadian company has been supplying products made from waste paper. No where in the list of possible products is the plastic "lumber" that some recycling advocates have touted. Instead, the Dow spokesperson says, Domtar products made from post-consumer bottles will not be particularly innovative but will be already familiar to construction industry professionals.

The Dow spokesperson says the ideal bottle collection system is voluntary curbside sorting by consumers. "Dow has never been in favor of bottle laws, taxes or other restrictions on free enterprize." Sorting of recyclable materials by consumers will happen, he says, "because of economics and not because people will be compelled by government regulations to recycle."

Symposium Looks At Degradability

Chemical giant cites lack of understanding

During a recent symposium on degradable plastics, a Mobil Chemical Co. executive expressed doubt that biodegradable plastics would be able to significantly reduce the amount of waste that is currently being landfilled.

"Manufacturers are facing increasing pressures to provide degradable plastic products," said Robert J. Barrett, Mobil's general manager for solid-waste management solutions. "We believe these pressures are generated by a lack of understanding of the nation's solid-waste problem."

He added, "Biodegradation of plastic or paper in a landfill takes many years to happen—far too long to extend landfill life." As proof, another participant at the symposium showed photographs of 10-year-old landfill refuse including corn on the cob that looked almost as fresh as yesterday's leftovers.

WHO SUPPORTS CONTAINER DEPOSITS?

Percent respondents



Source: PACKAGING's 1988 Consumer Survey

Deposit Law Support Varies With Consumer Age

Seniors like the idea most of all

Consumers living in states that do not currently require payment of deposits on beverage containers are evenly divided for and against such laws. Among the 50 percent of consumers who support deposit regulations, young adults like the idea least; senior citizens prefer it most.

Results of PACKAGING magazine's 1988 Consumer Survey

show that only 35.3 percent of survey respondents 25 years old or younger would vote for a state-wide deposit bill if they could be sure it would help recycling. However, 52 percent of respondents over 65 years of age say they would vote to enact a deposit law.

In all, 756 households out of the total survey group of 1,000 responded to PACKAGING's most recent annual study of consumer opinion. A full report on the results appeared in our June issue.

Glass Program Wins Award

Recycling group cites the Nickle Solution

The National Recycling Coalition recently presented the glass industry with an award for outstanding achievement in promoting glass recycling.

The NRC, which is composed of more than 1,000 environmental and recycling experts from the public and private sectors, applauded the glass industry's Nickle Solution program for its role in helping to stimulate recycling efforts.

The Nickle Solution, created in 1983, is funded by contributions from glass workers and their employers. This cooperative effort between labor and management serves to promote the use and recycling of glass containers.

For more information on the Nickle Solution program and glass recycling in general, contact the Glass Packaging Institute, 1801 K St., N.W., Suite 1105-L, Washington, D.C. 20006.

PACKAGING

THE PACKERS MAGAZINE FOR DECISION-MAKERS / FEBRUARY 1989

MEDICAL DEVICES TEST PACKAGING'S IMAGINATION

Special Report: What
Was New At Pack Expo

Shelf-Presence Drives
Blow-Molding Advances

Aerosol Line Handles
Variety With Ease

New Developments On
View At Britain's Pakex



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VOLUME 34 NUMBER 2

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Bottled Water Rides New Packaging Wave

Transparent resins, new sizes and shapes gain market share as this \$2-billion industry begins using packaging to its best advantage

By Mark Spaulding Associate Editor

It covers 70 percent of the Earth's surface. Billions of gallons of it lie underground in aquifers or bubble up as springs, just for the taking. It's water . . . the ultimate commodity.

How does an industry sell something so ubiquitous? Something given away free in restaurants without asking? A product priced at least 1,000 times more than tap water? There's only one way . . . through packaging.

"Packaging is why someone will pay for water in the first place," says David M. Handler, marketing program specialist for General Electric Plastics. "And, superior packaging is why someone will pay more for it."

Consumers buy and drink bottled water for a myriad of reasons. It's a refreshing thirst-quencher. Its taste can be far superior to that from private wells and municipal sources. Safety concerns over local pollution and groundwater contamination lead many to their supermarket's bottled-water section. And, of course, status-seeking and the need to be fashionable also play a role in driving up bottled-water sales.

For decades, most bottled water was packaged in 5-gallon glass containers for the commercial cooler and home-delivery markets. Packaging was dictated to the industry. But now, with 1988 sales expected to top \$2 billion, the situation is fast becoming reversed. Today, bottled water is packaged in a wide spectrum of container sizes—from 6 ounces to 6 gallons—and materials—polycarbonate, polyethylene, PET, PVC, glass and even metal cans.

"The bottled water industry is still a few years away from using packaging to its best advantage," Handler says. "But there will definitely be more product differentiation in the future."

Consolidation and competition

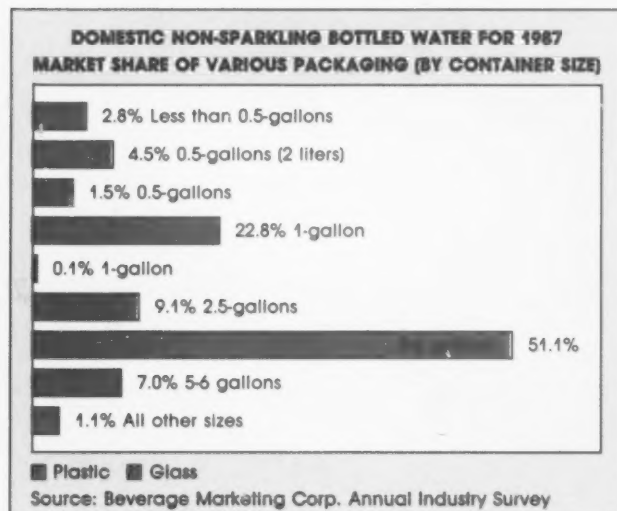
Fueling the rapid growth of packaging choices for bottled water are two other important factors: foreign competition and industry consolidation. The tremendous marketing programs brought on by competition from foreign mineral-water companies in the late 1970s helped boost sales 300 percent between 1975 and 1985. Annual growth rates of 10 percent or more are expected to continue through 1992. The current wave of mergers and acquisitions—led by foreign giants such as Suntory, Perrier and Anjou International—has consoli-



Clear containers, made from transparent resins such as polycarbonate and PVC, have gained an important toe-hold for premium-priced bottled water.



Fastest growing bottled-water sizes? Small single-servings; 2.5 gallons



dated marketing resources aimed at increasing the retail sales of bottled water. Five companies dominate the industry, taking 40 percent of the business.

Still, some 450 bottling plants nationwide produce more than 600 different brands of bottled water, each of which must compete effectively for the consumer's favor. Bottled-water packagers are realizing that through a wider range of choices projecting quality, convenience and esthetics, they can command a premium from the consumer.

Clear, plastic containers made from transparent resins such as polycarbonate and polyvinyl chloride (PVC) are the strongest packaging wave to hit bottled water. Polycarbonate dominates the 5- to 6-gallon market for commercial and home delivery. It is currently used in almost 88 percent of these containers, according to a report from Beverage Marketing Corp., a New York-based research firm.

Now, clear plastic is being seen as an important product-positioning tool for retail packaging as well. "There is a great potential for clear containers despite the higher cost," says William Deal, president of the International Bottled Water Association. A 1-gallon bottle in PVC typically runs 20 to 30 cents each vs. six to eight cents each for polyethylene.

Clarity sells

"Water bottlers have learned that the customer prefers to see what he is buying," says Richard LaRue, market development manager for Occidental Chemical Corp., a PVC resin supplier. "And sales often increase when the product is in a clear package." He foresees clear plastic containers taking more than 80 percent of the retail bottled-water market in the next five years. LaRue cites PVC's clarity as the single most important factor in the change, as well as its barrier properties against the tastes and odors bottled water can pick up during distribution.

Handler offers a more conservative estimate. He sees clear plastic containers controlling 30 to 40 percent of retail bottled-water packaging. All else being equal, though, image does sell. "A mid-priced product with a crystal-clear bottle has the potential to surpass the low-end product in profitability and the high-end product in volume," says Handler.

"Store brands in clear PVC outsell translucent, even at a higher price," LaRue says. "Yet the basic label is exactly the same and says nothing about the quality of the product."

Does clarity really sell? Just ask Don McKay, president of Indian Springs Water Development Corp., in Dallas. The company's internationally distributed spring water sells twice the volume in 1-gallon polycarbonate containers vs. polyethylene. And he is planning to introduce a 2.5-gallon clear container in April. Indian Springs, which also sells six-packs of 10-ounce PVC bottles, will still rely on polyethylene for its distilled products, where taste isn't as important a selling factor, McKay says.

Despite the obvious clarity of glass, Indian Springs does not package any of its products in it because "of the obvious reasons: breakability, weight and insurance costs," says McKay. In fact, industry-wide, glass containers accounted for only 18.4 percent of all bottled-water gallonage in 1987, according to Beverage Marketing's report.

New sizes, shapes offer convenience

A second wave of new sizes, potential new shapes and other convenience features are beginning to make their mark on bottled-water packaging. Two-and-a-half-gallon bottles are now probably the fastest growing size of smaller packages, according to Dean Hebb, Liqui-Box Corp. national sales manager. The market share for 2.5 gallons is growing at an 8.3-percent annual rate. These containers are usually blow-molded with integral handles and have taps for easier dispensing. The 2.5-gallon is now made only in polyethylene, but Liqui-Box introduced a demonstration size recently in a clear resin.

Plastic bottled-water containers less than 2 liters in size are also experiencing significant growth. Once the sole domain of glass, PVC and PET are now making important inroads for domestic and foreign bottled waters in single-serving sizes. This size in plastic has come from virtually zero in 1985 to capture 2.8 percent of the market, Beverage Marketing says.

Typical single-serving bottles contain anywhere from 6.5 to 12 ounces, and packagers of bottled water are discovering advantages soft-drink bottlers have known for years. Sold in a handy size of four- or six-packs, bottled water packaged this way can justify a price premium for the convenience.

Although the plastic "milk-bottle shape" still dominates the retail market as packagers rush to meet skyrocketing consumer demand, the future is bright for innovative new designs. Some possibilities include three-dimensional embossing of logos or even ice-cube patterns molded into clear containers. "Grocery displays can be improved," says Handler. "Built-in designs to create new stacking systems may limit the need for some secondary packaging." Handler also noted the premium-price potential of a polycarbonate pitcher of bottled water using a textured, cut-glass effect.

Another example is Indian Springs, which will soon introduce a PVC carafe in 1- and 1.5-liter sizes. The new packaging will appeal not only to the company's European customers but is one more way the bottled-water industry is using packaging to differentiate its products in a tough, competitive, domestic market.

PLEASE RATE THIS ARTICLE

How would you rate this article? To reply, circle the appropriate number on the reader service card:

Outstanding	435
Above Average	436
Average	437
Below Average	438



MARK SPAULDING
Associate Editor
"The rapid growth of the bottled-water industry and its corresponding need for high-image

packaging is reflected in the supermarket aisle, where a typical bottled-water display takes up as much as 16 feet of shelf facing."

RECYCLING NEWS

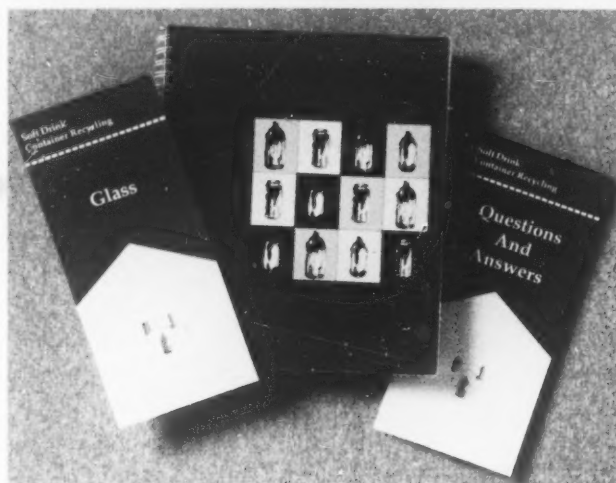
Soft-Drink Group Publishes Guidebook

Pamphlets cover each container material

The National Soft Drink Association has published a state-by-state guide to recycling and litter-reduction operations. The book, titled *Promoting Recycling to the Public*, also offers techniques for stimulating increased consumer interest in recycling of soft-drink containers.

In addition to the 104-page book, the NSDA has published separate pamphlets, each of which discusses the recycling of a specific container material. Together these publications provide a comprehensive overview of current recycling programs and useful strategies.

Much of the NSDA book is devoted to a detailed description



New book and pamphlets published by the National Soft Drink Association provide a wealth of information on recycling efforts state-by-state.

of each state's anti-litter and/or recycling programs. Included in each description is the name of the program, its chief contact person and its public-information activities. Also included are the number of recycling centers participating in each state program, the tonnage of waste collected,

membership dues and annual promotion budget.

In an introduction to the book, the NSDA editors say, "The most successful state programs seem to be those that are doing a particularly good job of promoting recycling and litter clean-up in their communities. The

level of promotional creativity and sophistication for these programs is growing all the time, and so are their promotion budgets." The editors continue, "Yet, many state programs are constantly re-inventing the promotional wheel because great ideas and materials are not being shared across state borders."

Promoting Recycling to the Public aims to correct that by enabling one state recycling agency to learn of and borrow ideas from others. It also provides concerned companies with the information they need to contribute to recycling programs in their state.

The pamphlets augment this information by offering examples of successful recycling techniques. For example, in the pamphlet on glass containers, the NSDA discusses the value of unattended drop-off "igloos" placed in Washington, D.C., church parking lots. According to the pamphlet, "Congregations keep the money they make from selling the bottles that people have donated to the drop-off center."

Copies are available from the NSDA, 1101 Sixteenth St. N.W., Washington, D.C. 20036.

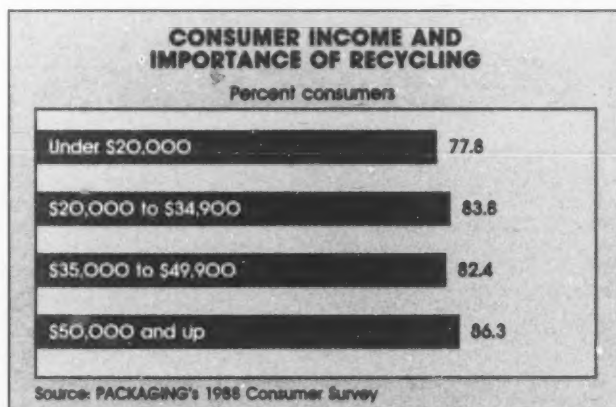
U.S. EPA Cites Magazine Survey

Report draws heavily from PACKAGING

A new report prepared for the Environmental Protection Agency on consumer response to the environmental consequences of product purchase decisions cites *PACKAGING* magazine's 1988 Consumer Survey as a source of valid consumer data.

The EPA study, scheduled for publication this spring, recommends strategies for raising consumer demand for products and packaging that promote either initial waste reduction or post-use recycling.

Referring to information from the *PACKAGING* survey, the report states, "Consumers have been convinced that disposable products... are more convenient..." To counteract this, the report says, "there needs to be an awareness program aimed at exposing the environmental costs of disposable products..." The report includes numerous other findings from *PACKAGING*'s 1988 Consumer Survey.



Recycling Views Change With Income

Rich, st consumers see greatest need

Responses from 756 households nationwide show that the perceived importance of recycling rises along with consumer income.

PACKAGING magazine's 1988 Consumer Survey reveals that nearly 78 percent of consumers in the under \$20,000 income bracket believe recycling is extremely/somewhat important.

This opinion rises to roughly 83 percent as consumer income increases to the \$49,900 level. And extremely/somewhat responses jump to 86.3 percent in the highest income bracket of \$50,000 and above.

Statistics on consumer responses to a wide range of packaging-related questions for 1989 are now being assembled. A full report on this year's Consumer Survey will appear in *PACKAGING*'s June issue.

Packaging-Waste Coalition Formed

Group to co-sponsor Pack Alimentaire

Innovative Exposition, coordinator of Pack Alimentaire Food & Beverage packaging expositions, has announced that the newly formed Packaging Coalition for Solid Waste Management will co-sponsor Pack Alimentaire '89.

At the exposition, scheduled to be held June 11 through 13 in Chicago, the coalition will focus on waste issues that will affect the packaging field into the next century and what needs to be done at the present time to solve existing problems.

Manufacturers of consumer goods and packaging, package designers and individuals are invited to join the coalition and make use of the group's waste-regulations database and public-relations activities.

For more information about the waste-management program at the exhibition, contact the coalition at P.O. Box 979 Planetarium Station, New York, N.Y. 10024-0979.

MEDICAL DEVICE PACKAGING MEETS COST AND USE DEMANDS

Ease of use, tamper-evidence, and relentless cost-cutting in health care—these factors have helped spawn new, better medical packaging

By Melissa Larson
Senior Editor

The market for medical devices is being rocked by change—and packaging is beginning to reflect these changes.

For products from sterile disposable supplies in the operating room to diagnostic kits used at home, new materials are challenging the reign of old stand-bys, offering new sterilization options, lower cost and easier use by health workers.

Ingenious lab kits for infectious diseases and even drug-abuse testing are being designed with tamper-evidence and ease-of-use features. The aim is to ensure absolute accuracy and confidentiality in this era of independent labs and less skilled technicians.

Overall, medical device

packagers and their suppliers are scrambling to keep up with the increased testing and health needs of an aging population. Their goal is to design appropriate packaging which allows health care professionals and home users alike to effectively inventory, administer, and dispose of a host of new medical products.

Materials forecast

A recent research report on the medical packaging market points to plastics as headed for a larger share of the market. Business Communications Co. in Norwalk, Conn., projects plastic materials usage expanding from 40 percent of the total market to approximately 45 percent in 1992. Aggregate growth rate in plastics consumption will be 7.2 percent per year.

The report cites particularly high growth rates among specific plastics which are remaining or becoming popular in new medical packaging designs. They include polyesters, polypropylene, polycarbonates, PVC and polystyrene, as well as some engineering thermoplastics.

Glass will be the principal loser in the future, according to BCC. Although vials, syringes and some bottles and jars will still be made of glass, overall usage will reportedly decline by an average of 1.5 percent over the next five years.

Manufacturers of paper and paperboard materials will concentrate on perfecting innovative lidding materials which are porous, sterilizable and cost-effective, according to the study. Laminates and composites using aluminum foil for pouches, wrappers and liners also provide opportunities.

But plastics appear to be the materials of the future for medical packaging, as designs focus on disposability and the drive to lower costs.

Recent development work has concentrated on the performance characteristics of specific plastics. Such materials ideally should be easy to thermoform, able to stand up to various sterilization techniques without melting or yellowing, and easily bondable to paper or composite lidstocks without leaving peel residue when opened.

Trays and pouches

Sterile plastic trays and pouches, for everything from a pair of rubber gloves or scissors to complete thoracic surgery kits, have become common in the modern operating room. The nurse selects the proper tray, peels open the lidding, and finds the sterile contents carefully laid out for easy use.

After the kit or pouch has been opened, the disposable packaging is discarded—after being recorded via bar code

New medical-device packaging answers the need for low cost, ease of use and sterilization options.

SUMMARY TABLE
ESTIMATED AND PROJECTED SALES OF MDK'S, BY MARKETS
 (\$ Millions)

	% of Total	1988	% of Total	1993	AAGR% 1988-1993
Clinical	86.0	1800.0	83.0	2200.0	4.1
Labs	79.0	1700.0	73.0	1900.0	2.3
Doctor's Office	7.0	147.0	10.0	270.0	13.0
Research	8.0	168.0	10.0	270.0	10.1
Home	6.0	126.0	7.0	189.0	8.5
Total	100.0	2100.0	100.0	2700.0	5.3

Source: Business Communications Co., Norwalk, CT. AAGR: Average annual growth rate

Sales of diagnostic kits to doctors' offices will jump in the next five years, according to one firm



Paper lidding features vents through which sterilants can pass more easily.

for charging back to the individual patient's hospital bill. It has become more economical for hospitals to use sterile disposable devices of all types than to re-sterilize reusable ones on a regular basis.

New combinations of lidding and tray materials have made these inexpensive, easy-to-use, tamper-evident packages possible.

Among the new options for medical device packagers are steam-sterilizable polycarbonate films, rigid and flexible bottom web films designed expressly for medical and pharmaceutical packaging, new gamma-radiation sterilizable films, and adhesive heat seals which indicate by a color change that the package has been opened and is no longer sterile.

Form-fill-seal packages have enabled medical packagers to lower costs, since they are less labor intensive than pre-formed pouches for these types of products, and also offer better inventory control.

So-called deep draw thermoforming can produce rigid trays of sufficient size to hold

several components of a kit or a complicated device, inexpensively.

In fact, a few medical packagers have garnered industry awards and repeat business by offering custom medical procedure designs for the operating room, in which each component of the procedure kit is laid out in the order it will be used.

Some medical packagers have designed trays or pouches which accommodate several different products, with only the on-line-printed lidding language changing as needed.

Pharmaseal Div. of Baxter Healthcare Corp., in Valencia, Calif., says it will be phasing-in a procedural tray design which could accommodate dozens of different sterile products. The tray is a flexible blister made of modified polyethylene and topped by paper/film laminate lidding which is printed on-line. The design replaces heat-sealed gabled cartons.

Test kits

Medical diagnostic kits, designed for testing patients'

blood and other specimens for ailments ranging from strep throat to AIDS, have changed along with the testing market.

Fewer hospitals can now afford large in-house labs, and instead are contracting with independent laboratories. Doctors are performing tests in their offices which only a few years ago would have been referred to a lab. And in-home diagnostic kits are allowing consumers to perform some "pre-screening" procedures before ever making an appointment with their physician.

Doctors themselves are benefiting from innovations that have made diagnostic tests easier than ever to administer and interpret.

Ease of use and lower costs are projected to help drive a 13 percent per year rise in sales of medical diagnostic kits to physicians' offices for the next five years, according to a recent study of the market by Business Communications Co. (See Table.)

Drug-abuse testing is becoming widespread, as many workplaces institute manda-



Drug test kit in blister, for use by labs, has two-year shelf life. Urine test cup and lid system assure that specimen has not been tampered with during journey to laboratory.



Acrylic-based tray and lidding provides excellent light transmission and chemical resistance for medical packaging, such as this Kendall product.

tory testing. And a blood test for AIDS, as well as other infectious diseases, is now a routine part of premarital screening for many engaged couples. It all adds up to more tests being performed, in more locations, by (in some cases) less-qualified technicians.

Tamper-evident features and clever kit designs have made the testing job a little easier.

The "Quik Test Drug Screen" test marketed by Keystone Diagnostics primarily for law enforcement and pre-employment screening tests, was recently redesigned with resulting longer shelf life and less possibility of moisture contamination.

The new kit is constructed of a PVC-fluoropolymer film laminate blister tray, containing chemically-treated test paper and a syringe. These compartmented items are separated by a perforation, and a peel-off foil-paper-plastic laminate covers the entire tray.

The old package, a polyethylene pouch, occasionally allowed moisture to get into

the kit, affecting the test results. The fluoropolymer film layer in the new pack provides an effective moisture barrier, as well as optical clarity, which apparently makes the kit more appealing. Shelf life of the kit has increased from one to two years.

Simple can be beautiful. Plastic Technologies, Inc. has developed an updated tamper-resistant urine specimen container for drug abuse testing, which it says maintains specimen integrity in collection and transport, as well as providing firm evidence that no tampering with the sample has taken place before it arrives at the laboratory. The container, dubbed TRU, was an SPHE award finalist in the medical devices category for 1988.

The container consists of an injection-molded cup and lid. The 120 milliliter cup is made of medical grade polypropylene and the lid from low-density polyethylene, chosen for its sealing characteristics. After the specimen has been collected, the two components lock to-

gether using a patented mechanism.

According to the company, once the lid is properly seated, the force required to remove it causes visible damage to the structure. For easy laboratory access to the specimen, a punch-out opening is molded into the lid, and a special tool is provided to properly open the container in the lab. The container can be resealed for storage or disposal by using a supplied plug for the access port.

The container is simple in design, extremely low-cost and yet maintains a high-strength seal during long-distance transport without the use of evidence tapes to seal the specimens.

Plastifilm's carousel test tray facilitates visual color comparisons when various agents are added to throat culture or other specimens. A carousel of molded inserts holding glass vials can be rotated so that each vial is next to the control sample, for easy visual comparison. The base tray holds the bottles of reagent, has a well for pipettes, and can slide into an

outer carton or be fitted with a plastic lid.

The tray, which is being used by several major pharmaceutical firms, can be customized for doctors' offices, hospitals and laboratories, for a range of tests—from strep throat and diabetes to hepatitis and AIDS.

Of course, the pace of change in the health care industry will continue to challenge medical device packagers in the future. And an array of innovative materials, processes and unique designs will enable them to meet those challenges. ■

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Below Average	453

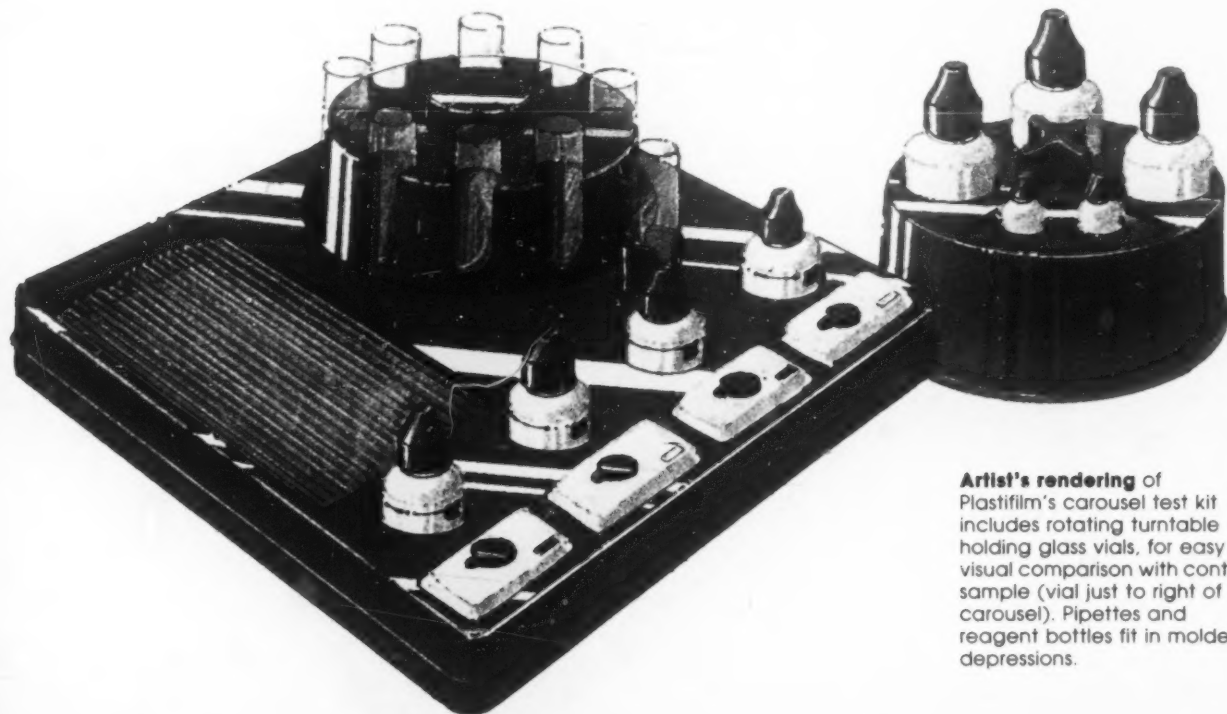


MELISSA LARSON

Senior Editor

"Packaging innovations have a way of mirroring society's demands, and right now testing for

drug abuse and infectious diseases is receiving top priority from medical and pharmaceutical packagers. Safety, confidentiality and disposability are the watchwords."



Artist's rendering of

Plastifilm's carousel test kit includes rotating turntable holding glass vials, for easy visual comparison with control sample (vial just to right of carousel). Pipettes and reagent bottles fit in molded depressions.

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PACKAGING

THE CAHNERS MAGAZINE FOR DECISION-MAKERS / MARCH 1989

KODAK GOES UPSCALE FOR EKTAR

Cushion Choices
Are Expanding

High-Visibility
Packaging Grows

Tried And True
Works On Pill Line

Tube Applies
Measured Product



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VOLUME 34 NUMBER 4

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PACKAGING NEWS

Processors Ask FDA To Require Juice Content Labeling

NFPA will also seek amendment to require full nutritional labeling

Acting on the recommendation of its juice manufacturer members, the National Food Processors Association (NFPA) filed a petition today with the FDA asking the agency to require the percentage of total juice to appear prominently on all fruit and vegetable juice and dilute juice products.

In a separate action, the association also plans to seek an amendment to the Federal Food, Drug and Cosmetic Act, to require full nutrition labeling on these products.

The NFPA's petition reflects a consensus reached Dec. 1 by a special association task force. The group was convened to propose a solution to a 15-year debate over whether percentage juice content should be required information on the front panel of juice products.

Companies represented at that meeting included Ocean Spray Cranberries, Inc.; Dole Packaged Foods Co.; Campbell Soup Co.; Del Monte USA; National Fruit Product Co.; Clement Pappas & Co.; and Tree Top Inc.

DuPont To Build World's Largest EVOH Facility

Plant at LaPorte, Tex. to be on-stream by mid-1991

The DuPont Co. has announced plans to build the world's largest manufacturing facility for its Sellar OH ethylene vinyl alcohol (EVOH) resins for packaging. The 40-

U.S. Bag Sales Will Reach \$5.6 Billion In 1993

Study says specialty bags will grow 5%/year

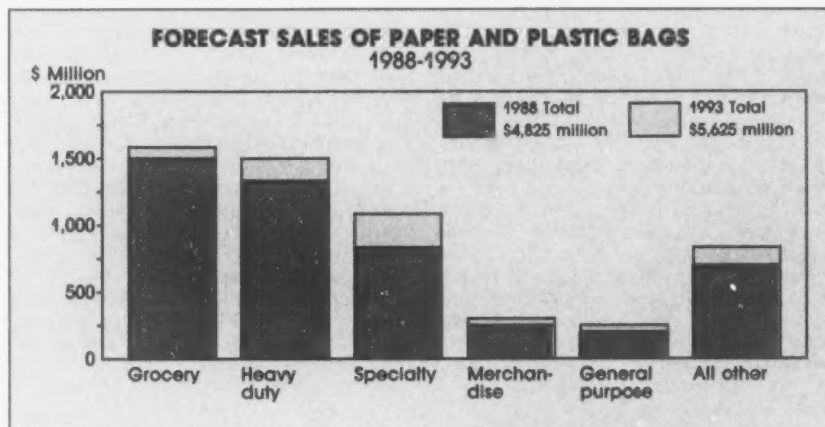
U.S. consumption of paper and plastic bags will reach \$5.6 billion in 1993, representing annual growth of 3.1% over the \$4.8 billion level reached in 1988. This according to a study recently released by packaging indus-

try consultants Kline & Co., Fairfield, N.J.

Consumption of specialty bags, such as those used for microwave popcorn, will grow by 5 percent per year, to \$1.1 billion, as innovative suppliers find more new applications for paper and plastic bags.

As a result, Kline says it expects to see further consolidations among the key suppliers of commodity bags—which offer only average growth over this period—and increased merger and acquisition activity involving supplies of specialty bags.

For more information on the 86-page report, circle Reader Service No. 416.



million-pound plant at LaPorte, Tex. is expected to be in operation in mid-1991.

The resins are used primarily in multilayer plastic packaging to protect oxygen-sensitive foods and materials.

"DuPont is committed to offering the most comprehensive range of plastic materials for barrier packaging," says Bruce A. Bachman, director of the firm's packaging products division. "With our broad technical capabilities and product offering, we believe DuPont is well positioned to meet current and future packaging needs for oxygen-sensitive materials."

Sonoco, Graham Will Merge Plastic Bottle Operations

New firm will blow-mold containers from 28 plants nationwide

Sonoco Products Co. and Graham Engineering Corp. have signed a letter of intent to form a new company to produce and sell blow-molded plastic bottles to a wide range of packaging markets.

For several years the two firms have manufactured and sold plastic quart motor oil bottles through their Sonoco-Graham joint venture company. Graham's affiliated company, Graham Container Corp., has manufactured and sold plastic bottles to several other markets, including household chemicals, general automotive, and the food and beverage industries.

The new firm, to be called Sonoco-Graham, will combine the blow-molded packaging activities of Sonoco's Petroleum Products Div. and Graham Container Corp.

Sonoco-Graham will produce blow-molded containers from 28 manufacturing plants presently operated by one of the two parent firms. It will have access not only to Graham's equipment and engineering services, but also to the Sonoco Packaging Development labs, for packaged development and testing.

Hoechst To Sell PVC Film Division

Related assets in Delaware also on block

Hoechst Celanese Corp. has announced it plans to sell its rigid polyvinyl chloride (PVC) film division and related assets at Delaware City, Del.

The divestment "will enable the firm to concentrate its resources upon other more integrated businesses, such as polyester film, which fit in with its corporate strategy," according to a statement released by the firm.

The PVC film division's operations in the Delaware City Industrial Complex include manufacturing, marketing, technical and administrative functions.

IMPI Announces 24th Microwave Power Symposium

Microwave packaging among topics planned

The International Microwave Power Institute (IMPI) has announced plans for its 24th Microwave Power Symposium. Scheduled for Aug. 21-23, 1989.

The cooking appliance program will concentrate on such issues as: new microwave food and oven products, use of metal in the microwave, food chemistry in microwave heating, consumer uses and safety, developing microwave recipes, and new developments in microwave product packaging.

For more information on the symposium, circle Reader Service No. 415.

RECYCLING NEWS

Panel Members Downplay Degradable Packaging

Executives say it cannot do enough

During a panel discussion conducted recently for the Foodservice & Packaging Institute, Inc., executives from three leading suppliers of plastic packaging materials discounted the role of degradability in easing the landfill crisis.

Brought together by the Cahners Publishing Co. magazine *Restaurants & Institutions*, the seven-member panel responded to questions on a wide range of foodservice and packaging topics.

Among the questions was one regarding the controversial idea that plastics can be made to degrade in landfills. Three executives who responded to that question were Donald Genson, business director for solid-waste management, Dow Chemical U.S.A.; Christine Latella, direc-



Seven-member panel of packaging and foodservice pros discusses environmental issues. Expressing opinions about degradable packaging are James Reilly of Genpack Corp. (left), Christine Latella of Mobil Chemical, and Donald Genson of Dow Chemical.

tor of recycling technologies for Mobil Chemical Co.; and James Reilly, president of Genpack Corp.

Said Reilly, "Degradability is simply not a solution to the solid-waste problem. In new landfills... there is no air or moisture to cause even those materials that can degrade to degrade." He added, "In the older landfills, degradability doesn't make the matter disappear. It transforms it into other matter, which could cause future pollution problems."

Genson concurred. In newer landfills, he said, "water percolation is minimized. Likewise, required frequent ground coverage creates conditions that exclude oxygen. In both these ways, the rate of degradation of all material is dramatically reduced. Clearly, making items more degradable under these conditions will not solve the immediate problem of a shortage of landfill space."

In summing up, Latella said, "While today we landfill 80 percent of our waste, recycle 10 percent and burn 10 percent, there's going to be a reversal until eventually no more than 10 percent of the waste stream will be landfilled," she said. "It does not make sense to make plastics degradable so that they can be disposed of in the least environmentally acceptable way."

Rush To Plastic May Be Slowed

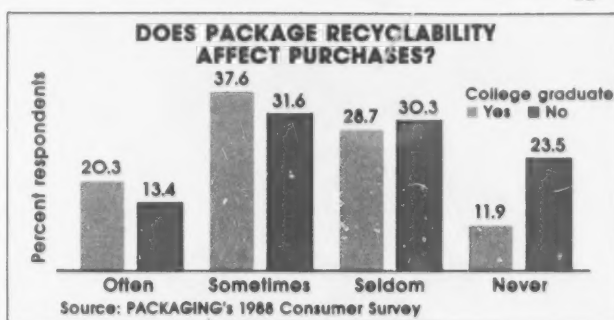
Study reveals packagers' caution

A recent study by Harborside Research Group, Inc., suggests that some packagers have been slowing down their move toward plastics in light of environmental concerns.

Based on responses by over 150 participants from the packaging field, the study showed that more than a few companies were putting the brakes on their conversion from glass and aluminum to plastics.

Also, most of the responding companies said they believed incineration would become the preferred method of solid-waste disposal by the year 2000 and that biodegradable packaging would prove to be the least viable solution to the waste crisis.

For more information, contact Harborside Research Group, 16 Front St., Salem, Mass. 01970.



Buying Choices Vary With Education

College grads often swayed by recyclability

PACKAGING's 1988 Consumer Survey shows that purchase decisions of college graduates are affected more than those of non-college grads by the recyclability of packaging.

Asked how often package recyclability affected their decision to buy one product over another, 20.3 percent of the college grads

replied "often" and 37.4 percent replied "sometimes." Only 13 percent of the non-college graduates said package recyclability often affected purchases; less than 32 percent said it sometimes did.

Of the 1,000 households contacted nationwide, 756 returned questionnaires on a variety of packaging-related subjects.

Results of PACKAGING's 1989 Consumer Survey will be published in the June issue.

SPHE Releases Questionnaire

Goal is to cut waste problems from designs

They may not have all the answers to packaging's effect on the waste stream, but they certainly do have the questions.

SPHE, the Society of Packaging Professionals, has finished work on a questionnaire that is intended to alert packaging professionals to the environmental impact of packaging right from the start of the design process.

Among other things, the questionnaire asks designers to consider the recycling and degradability attributes of each proposed package long before it goes into production. The organization hopes that the questions will encourage packaging suppliers and end users alike to "look introspectively at their packaging choices."

For more information, contact SPHE, Reston, Va. 22091.

PACKAGING

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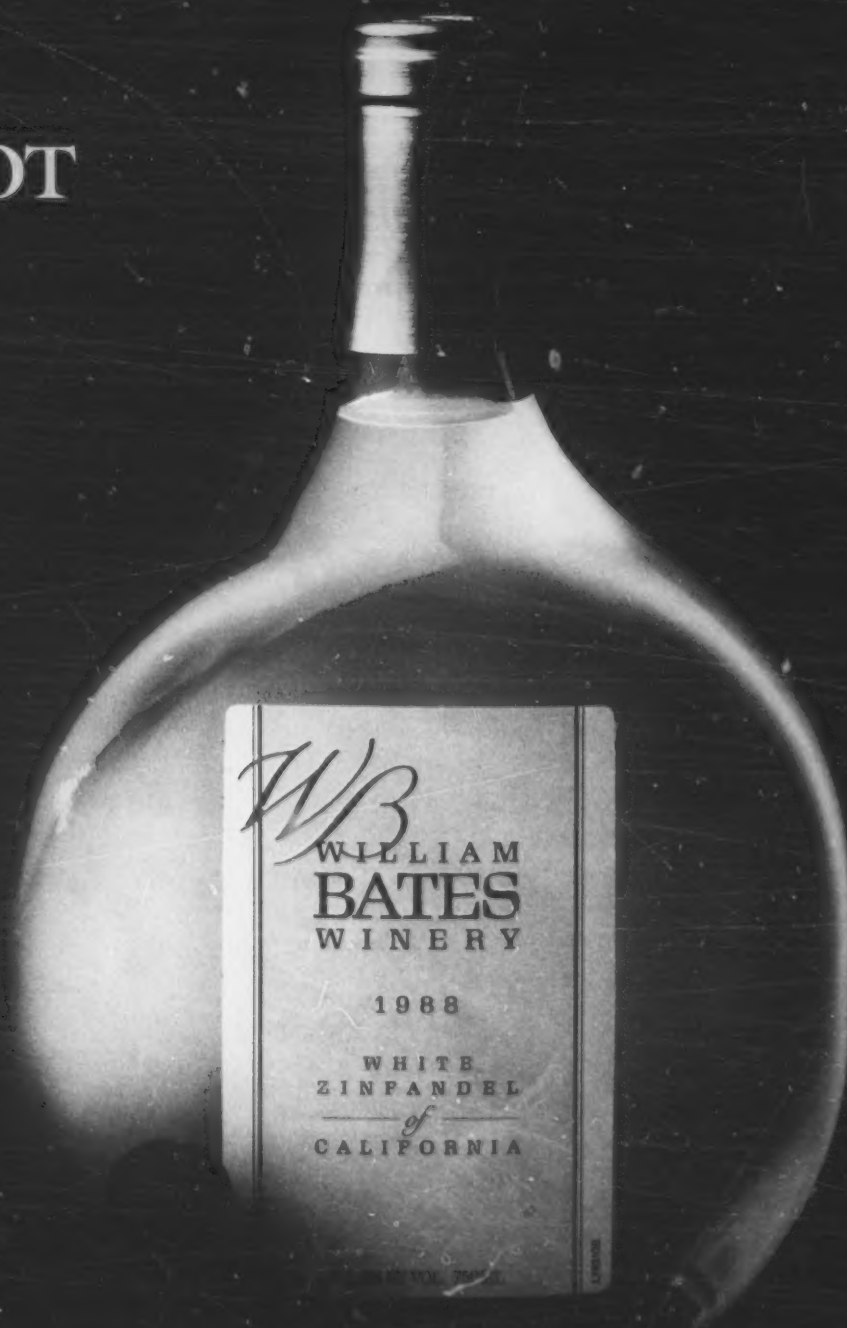
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PACKAGING NEWS

CTFA Calls For C-R Containers For Acetonitrile Products

Used in glue-removers for sculptured fingernails

The Cosmetic, Toiletry and Fragrance Association has petitioned the Consumer Product Safety Commission to require child-resistant containers for glue-remover products containing acetonitrile. This action is based on information indicating there has been one death and several injuries to children resulting from accidental ingestion of these products. One of the uses for acetonitrile is to dissolve the glue used for sculptured fingernails.

An article in a December issue of the *Journal of the American Medical Association* reported on the mishaps. Further investigation by CTFA revealed that these products are available in retail outlets without protective caps.

In announcing the petition, CTFA president E. Edward Kavanaugh said, "This action is necessary to be certain another tragic accident does not result from accidental ingestion of these products by a child."

CTFA's petition states, in part, that "ordinary child-resistant caps—the kind found on products in hardware stores, supermarkets and drug stores all over the United States—will provide an effective and inexpensive solution for a product that poses a serious hazard to children if ingested."

Phillip Morris Kills Culinova

Plans to focus on Kraft's Chillery line

Apparently willing to fund only one refrigerated food line between its two food subsidiaries, Philip Morris has chosen Kraft's Chillery line over General Foods' Culinova. The much-touted and costly Culinova line of upscale entrees has become a mega-merger casualty.

Distribution challenges inherent in the store-door delivery system for Culinova, and Kraft's expertise in refrigerated foods, were cited by a General Foods spokesperson as reasons for the move. Kraft's major presence in the retail refrigerated section, and its extensive foodservice network, are said to be marketing pluses for Chillery. Salads, entrees, pastas, sauces and desserts are all part of the mix-and-match refrigerated line, which has been in test market in Kansas City, Mo. since 1987.

Industry marketing researchers have previously cited Culinova's high retail prices, poor timing of the introduction, and high overhead due to refrigerated trucks and stand-alone retail cases stocked by General Foods personnel.

NFPA Seeks 'Friendly' Name For Aseptic Products

Will promote consumer awareness through new name

The Aseptic Affairs Committee of the National Food Processors Association (NFPA) has commissioned a consumer testing program to develop a new, "consumer-friendly" name for aseptic products. Members of the committee, representing packaging and

equipment suppliers and aseptic processors, plan to use the new name to promote consumer awareness of the aseptic processing and packaging technique.

The committee has retained The National Food Laboratory, Inc. to carry out consumer focus groups and quantitative research to determine an appropriate alternative name, based on the benefits of the process. The committee effort was triggered by results of an industry survey showing that the term "aseptic" neither attractively nor accurately describes the technology. The results of the consumer marketing effort should be available by late spring 1989.

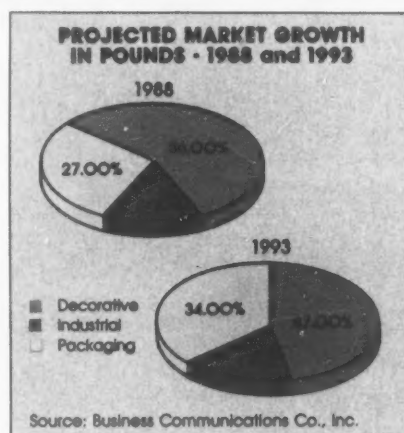
Bright Future For Metallized Products In Packaging, Says Report

Snack food packaging and microwave susceptors will drive demand

Packaging applications will account for a sharply increased share of the production of flexible metallized films and papers by 1993, according to a recently released study on the total market for these products by Business Communications Co., Inc.

The packaging portion of the total production of these materials will grow from 26.8 million pounds in 1988 to 48.5 million pounds in 1993—a 13 percent per year average annual growth rate. In food packaging, improved barrier properties and attractive store shelf appearance of these metallized materials are cited in the study as major driving forces in that growth.

Snack food packaging is by far the leading use in this market sector, however, the fastest growth in packaging application for met-



allized materials will be in microwave susceptors and coffee packaging.

Pressure-sensitive and glued labels and holograms made from metallized materials are counted under the "decorative" segment of the total market, and are targeted for slow but steady growth at five percent per year.

For more information on the study, circle Reader Service No. 412.

Klockner Packaging Buys Rexham Machinery

Includes Bartelt line

Klockner Packaging Group, Inc. of Gordonsville, Va., a subsidiary of Klockner-Pentaplast of America, Inc., announced it

has acquired the Rexham Machinery Group of Sarasota, Fla. from the Rexham Corp.

The Rexham Machinery Group manufactures the Bartelt line of pouch packagers, cartoners, fillers and a range of labeling and banding machinery. The firm will be known as Klockner-Bartelt, Inc. under the new ownership, with existing personnel remaining in Sarasota.

Study Forecasts European Microwave Boom Next 8 Years

Demand will soar for plastic trays

European markets for reheatable convenience foods have been growing at an average rate of 5 percent per year in recent years—yet microwave packaging demand has soared well above this, says a new study released

by London-based Marketpower Ltd. The report covers reheatable convenience food markets in the U.K., France, Germany, Netherlands and Belgium.

As a result of this soaring demand, microwave containers will achieve explosive growth between 1988 and 1995, the study forecasts. Plastic tray demand will increase from 400 to 1320 million units, and coated board from 245 to 475 million units. Despite this, foil demand will hold up well, declining only slightly from 1050 to 1000 million units.

For more information on the seven-volume report, circle Reader Service No. 411.

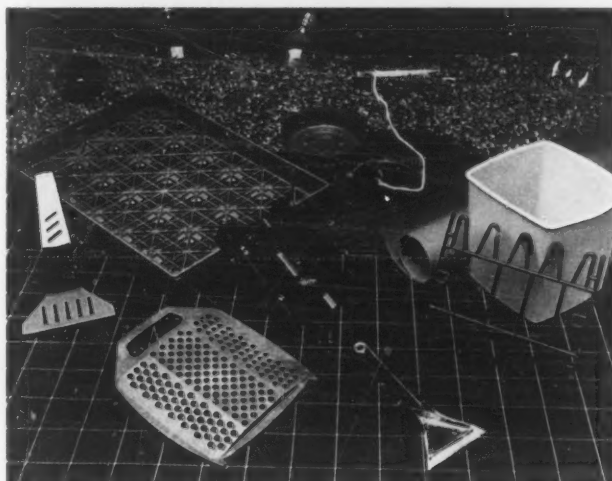
RECYCLING NEWS

Price Restricts Markets For PET Copolymer

Recycler longs for symbolic application

Wouldn't it be great if soft-drink bottlers could transport filled bottles in crates made from old ones? Or, as Ira Stern puts it, "Can you imagine the PR that Coke would get if they could say they were putting their bottles into crates and not into the ground?"

Stern, president of PET Polymers, Roosevelt, N.Y., has fabricated such crates from discarded 2-liter polyethylene terephthalate bottles using technology patented by Fina Oil and Chemical Co. But so far he has been unable to interest molders



A wide range of products in many colors can be made of the impact-modified PET copolymer that results from waste PET bottles. But for now the recycler is staying with basic black.

of HDPE crates in switching to his impact-modified PET copolymer.

Although PET Polymers' material sells for 48 cents a pound and HDPE sells for roughly 54 cents, a relatively high yield makes HDPE the better buy. Then there's the matter of the

molds. Since Stern's material shrinks less than HDPE, molds would have to be changed. This is an expensive proposition.

For that reason, Stern is presently concentrating on marketing his PET-based copolymer as a replacement for ABS, which sells for 90 cents a pound. His

first commercial application is in rigid supports for padded toilet seats. And although he can make his material almost any color, Stern has decided that Henry Ford was right: "You can't go wrong making black."

Stern is confident that he will find additional customers—molders of typewriter-ribbon cartridges among others. But clearly, he strongly wants to sink his teeth into something as symbolically significant as the bottlers' crates. He laments, "I just want somebody to say, 'It's a great product. I want to try it, so I'm going to absorb the little bit of extra money it will cost.'"

But Ira, isn't that too much to expect of any profit-making company? Stern answers yes with a sigh... and a sense of humor: "Unfortunately," he says, "most people will keep their mother for a penny and sell her for 2 cents."

He adds, "The bottlers want me to take their bottles. But they say, 'Take my waste and leave me alone.' How do these people expect us to recycle if they're not prepared to pay for it?"

CRinc Teams Up With Glass Leader

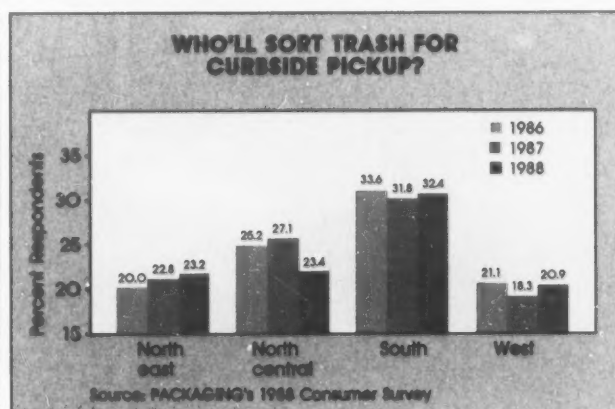
Partners plan two new recycling plants

A major glass producer and a leading material-recovery corporation have joined forces to develop new recycling facilities in California.

Anchor Glass Container Corp. and New England CRinc have signed an agreement to establish California CRinc and operate two recycling plants near Anchor's existing facilities in Antioch and Vernon, Calif.

Anchor, the nation's second-largest manufacturer of glass containers, plans to buy waste green, amber and flint glass from the new company. But California CRinc will recycle more than glass. Plastics, aluminum, ferrous metal and paper will also be processed.

Richard J. Kattar, president of New England CRinc, says the goal of his company and the new joint venture is to be "first in space." By that he says he means that CRinc intends to lead the way in conserving space by recycling solid waste.



South Leads In Sorting Support

Nearly one-third will separate trash

How do regions of the U.S. compare in their residents' willingness to sort their trash by material for curbside pickup? To find out, PACKAGING queried residents of the Northeast, North Central, South and West regions as part of the magazine's past three annual consumer surveys.

Although results differ by several percentage points from year to year, one thing is clear: South-

erners lead residents of the other regions in willingness to sort their trash.

More than 31 percent of the respondents from the South said they would do so if it would help recycling.

The next highest percentages—between 23.4 and 27.1—were reported by residents of the North Central region of the country. Residents of the West accounted for the lowest percentages reported: between 18.1 and 21.1 percent.

Paper Group Funds Contest

Four best recycling stories to win \$500

There's still time to submit entries to the American Paper Institute's "Best Paper Recycling Story" contest.

In order to reward individuals, corporations, charities and municipalities that are doing an outstanding job of recycling paper, the API is collecting information about their efforts through April 17.

Contestants are to include information on quantity and grades of paper collected, income earned and programs funded.

J. Rodney Edwards, vice president of the API paperboard group, explains why the contest is being conducted at this time: "We're confident the publicity generated by the contest will increase general appreciation for paper recycling and motivate additional collection."

Send entries to "Best Paper Recycling Story" Contest, 485 Madison Ave., 4th Floor, New York, N.Y. 10022.

SPECIAL REPORT

PACKAGING LURES NEW COSMETIC CONSUMERS

From tubes to pumps, sleek packaging for skin- and hair-care products is helping lure a new generation of consumers

By Melissa Larson
Senior Editor

To the old adage, "With age comes wisdom," a cosmetic marketer might add, "With age comes new customers." Men with thinning hair, and women concerned about wrinkles, are snapping up new hair- and skin-care products, packaged to enhance their therapeutic claims.

From the drug store counter to the supermarket to the department store or salon, the over-40 set is joining the younger generation in choosing from among thousands of new products. And packaging, through shape, decoration and features, is an essential part of the sell.

New thinning-hair line

Hair care for balding men hits the mass market with the introduction of the Thrive line from Shulton USA.

Consisting of a conditioning shampoo, a "vitalizing supplement" and a control pump spray, the line is packaged in white HDPE bottles

molded in a modern, masculine shape.

Graphics and design for both the bottles and the outer cartons were developed in-house and feature a geometrical, almost clinical look. Pressure-sensitive paper labels on the bottles feature a family graphic approach.

Introductory packaging for the line will consist of a paperboard carton holding all three packages, accompanied by instructional literature stressing the proper way to care for thinning hair.

Shulton's investment in product development, and its hefty advertising and marketing commitment for Thrive, are backed by hard research into this high-potential category.

By the year 2000, about 60 million men, or 44 percent of the adult male population of the U.S., will be in the 25 to 54 age bracket—the targeted group for thinning-hair care products.

Shulton marketers have extensively tested the product line in major chains and predict that it will boost

Skin- and hair-care products are leading the way in the cosmetics product category, with new products and packaging to appeal to both upscale and mass-market consumers.

INSTANT
BEAUTY

Hypo-Allergenic
Washes Out Hair and
Shampoo

HAISA

HAISA



Designer skin-care lines, as well as high-SPF sun-care products, are selling well in innovative packaging.

Sun-care product in the high-SPF range are popular in sticks, sprays

men's hair grooming sales by 17 percent, and profits by 19 percent, in its first year of sales.

"Our long-term projections show that the men's thinning-hair care segment could represent a \$240 million business by 1990 and \$330 million by the year 2000, if only 10 percent of the target group use these products," says Linda Baboulis, new product manager.

The Thrive line is being distributed to food, drug and mass merchandise outlets. Broadcast and print advertising will begin in May.

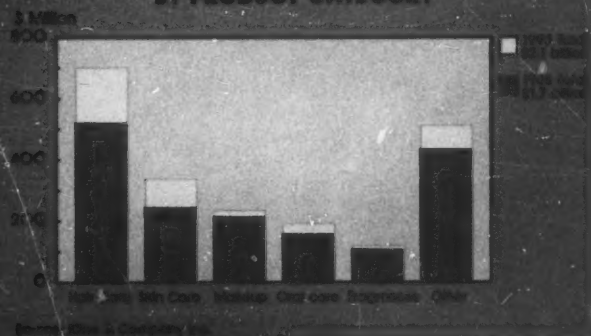
Sun care shines

The market for over-the-counter sunscreen products soared in 1988 with increased consumer awareness of the effects of prolonged exposure to the sun.

Especially successful were products with high SPF (sun protection factor) values—15 or more. According to packaging industry consultants Kline & Co., such high-SPF products accounted for a full 25 percent of sunscreen sales in 1987, the last year studied. Sun-care products are experiencing the fastest growth rate in the skin-care segment, according to Kline—13 percent per year.

The term "suntan lotion" is quickly being replaced by "sunscreen lotion" as a prod-

FORECAST CONSUMPTION OF COSMETICS BY PRODUCT CATEGORY



uct's therapeutic virtues are emphasized over the fact that it smells like coconut or comes in a bottle that matches your beach towel.

Squeeze bottles and tubes have traditionally packaged most slather-on sun creams and oils for young sun-worshippers. Sturdy, waterproof, and usually colorful, this type of packaging is still quite prevalent on the beach and by the pool.

But sticks, spray bottles, and towelettes have also made an appearance, as sunscreen marketers pitch over-30 consumers, their children, and others. A major brand name, high SPF value, and a variety of sizes and packages characterize some recent introductions.

For instance, Richardson-Vicks' Bain de Soleil upscale brand extension, Protecteur Gentil, is packaged in pump spray bottles, crimped metal tubes and even oval deodorant-type sticks.

Copy and graphics are subtle and sophisticated, and the SPF number, 20 or 25, is prominent.

Nivea is currently promoting back-to-back shrink-wrapped plastic bottles of sun-screen lotion and after-sun conditioner. L'Oreal and swimwear marketer Gottex are other well-known names expected to roll out upscale sun-product lines this season.

Aging skin

"Designer" skin care for face and body, as an extension of designer fragrances, is a popular addition to department store cosmetic counters.

Two years ago Liz Claiborne introduced a signature fragrance, packaged in striking white cartons with triangular accents and bottles in primary colors. As a follow-up, fragranced hand and body lotion, talcum powder and a conditioning spray have appeared in tall white round or triangular plastic bottles with the primary-color triangles as accent. Paperboard cartons bear the same design.

Indeed, skin care for both face and body is experiencing growth, due to increased consumer awareness of the importance of taking care of skin early, to delay the effects of aging, according to Kline.

Product lines and packaging range from the high-end therapeutic anti-aging products sold in department stores by the likes of Estee Lauder and Revlon, to recent mass-market line extensions from such brands as Noxzema and Pond's.

While no expense is spared on the frosted glass jars and high-tech pump packages for the upscale facial products, mass-market masks, lotions and creams generally appear in plastic bottles or jars with appropriate dispensing closures. Where silk-screening is the rule for high-end products, cost-effective decorating via pressure-sensitive or heat-transfer labeling characterizes the supermarket brands.

Mass market mentions

An interesting closure, use of color or even lack of color can create shelf appeal for mass-market hair- and skin-

care products.

Clairol's new temporary color rinse for women over 45, with the hopeful-sounding name of Instant Beauty, covers gray, enhances white or gray and washes out in one shampoo.

Packaged in a silver-colored plastic squeeze bottle with coordinated pressure-sensitive labeling, the line features a flow-control applicator/closure which cuts down on messes and coordinates with the background color of the front label.

Following the success of Revlon's Clean & Clear shampoo and conditioner in clear plastic bottles come Clean & Clear styling gels. The gel products, though viscous, are also clear and come in transparent plastic tubes with color-coded dispensing closures. A color block, carrying copy on the back of the tube, shows through the product and matches the closure.

A simple tube and pump spray bottle package Pantene's recently introduced Sculpturing Gel and Fixation Styling Spritz. But the iridescent effects incorporated into the plastic add impact, especially when combined with the pearly colors of beige, pink and green of the Pantene line extensions. The effect is a "salon" look at a mass-market price—for which the Pantene line has been well known.

Trial/travel sizes, almost a market of their own, are essential in allowing consumers to try a new shampoo, conditioner or other personal-care product without buying the

standard size. They find a continuing appeal, even after the product is well-established, among travelers who want a smaller, packable size of their favorite.



MELISSA LARSON

Senior Editor
"Packaging is so integral a part of selling cosmetic products that restraint is often thrown

to the winds. But cosmetic marketers must beware of over-packaging—both at the high and low ends of the market."

PLEASE RATE THIS ARTICLE

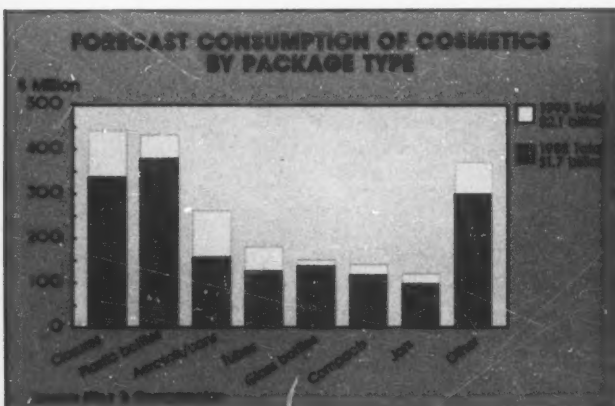
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Above Average	440
Average	441
Below Average	442



Clear plastic packaging shows off mass-market product virtues, and is often topped by a coordinating dispensing closure.

Hair-care for men with thinning hair will be a \$240 million business by 1990, says Shulton. Packaging for Thrive has a modern, masculine look.



NOTE

Some charts and graphs were color-coded in the original document. While it has not been possible to reproduce these items in color, their equivalent values on the black-and-white scale are often distinct enough to convey the same information as the original colors.

PACKAGING

THE PACKERS MAGAZINE FOR DECISION-MAKERS/MAY 1989

NEW VIEWS ON TAMPER- EVIDENCE

New Machinery Study
Pinpoints Growth Areas

Are Paperboard Price
Jumps Justified? An
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Hikes Bag-Line Output

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New O.J. bottle is clearly better

Enhanced shelf presence and slightly longer shelf life result from move to clarified polypropylene

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Secondary package safeguards cancer drugs

Two-piece device completely encapsulates the glass vial to prevent breakage and leaking

Electronic scale allows accurate piece counts

Fibre partitions cut returns, save \$15,000 a year

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PACKAGING NEWS

Demonstration Facility For Combat Rations Announced

Advanced processing, packaging techniques to be developed

The Center for Advanced Food Technology at Rutgers, the State University of New Jersey, has been awarded a major contract by the U.S. Department of Defense to establish and operate a facility to demonstrate advanced manufacturing and packaging technology for combat rations.

The contract is aimed at developing new, highly automated processes for the manufacture of combat rations. Beef stew will be the initial test product for the project, which will emphasize shelf-stable technology.

The research team will also be looking at the two major packaging types now used for combat rations—pouches and tray packs. A coalition of food, equipment and materials supply companies is currently being assembled to work jointly with CAFT and provide the broad base of technical expertise needed.

According to Dr. Jack L. Rossen, program director for the project, the program "is of extreme interest to industry because it gives them the opportunity to gain new techniques at low cost, and the processes we develop using the latest technology will work for consumer products as well as combat rations."

Beware Plastics Overcapacity, Says Study

Prices may be forced down by 50%

Overcapacity in packaging-grade polymer resins is now likely to emerge within 18 months, and may force prices down by as much as 50 percent over present levels. These are among the findings recently made available in data-base form by Euro-Data Analysts, a UK-based packaging industry consultancy.

The report, entitled, "Worldwide Name Plate Capacity Plans for Packaging Grade Polymer Materials," reportedly provides an overview and perspective on exactly which firms are planning new and incremental capacity. Included is the use of debottlenecking techniques to produce more resin from existing facilities.

The report covers existing and new capacity from 1987-1992 and beyond for the main packaging-grade polymers, including estimated investment costs, locations, joint ventures, cross-selling and marketing agreements, and production process details.

For more information on the report, circle Reader Service No. 484.

Foodservice Industry Wants Smaller Meat Packs

Participants air "beefs" at AMI roundtable

Meat packers and processors could better serve the foodservice industry if they would provide more product consistency and smaller packs. These conclusions emerged during the American Meat Institute's second foodservice roundtable discussion, held early this year with West Coast foodservice operators and distributors.

Foodservice participants said they would also like more specific product information. This would make selling the products easier and enable distributors to better inform operators about the products they provide their customers. Copies of the full report are available from AMI, P.O. Box 3556, Washington, D.C. 20007.

Study Tracks European Aerosol Market

Food sector targeted for growth

The European aerosol market, in spite of competition from pumps and environmental concerns, has more than held its own, and has benefitted from the expansion of important user sectors. These are among the conclusions of a recently released study from ERC Statistics International Ltd., a London-based firm.

Household products were cited as a key factor in the growth of aerosols. Although growth in that sector is expected to slow down over the next few years, the aerosol market harbours several other areas of potential growth, according to the study.

Aerosol food applications are identified as a potential growth area, with the study citing cream, mustard, tomato sauce and tomato puree. Car-care products and pharma-

Sidel Signs With USSR For PET Production

Will provide equipment for 90 million water bottles per year

Sidel, French manufacturer of equipment for making plastic bottles, announced it has signed a contract worth approximately 80 million French francs with the USSR, to provide all necessary equipment for a full polyethylene terephthalate (PET) plastic mineral water bottle manufacturing facility in that country.

Due to come on-stream in Turkmenistan in the spring of 1990, the Soviet facility will reportedly produce 90 million 1.5-liter PET mineral water bottles per year. Delivery of the equipment is planned from July 1989 to January of 1990.

This facility is reportedly the first major step on the part of the USSR in the field of plastic bottles for beverages.

AEROSOL PACKAGING IN EUROPE

	Total Sales (1988) Million Units	% Growth (1986-1988)
Belgium	1.8	43.2
W. Germany	34.7	24.4
Spain	4.5	180.0
France	37.0	146.7
Italy	16.0	33.3
Netherlands	8.7	74.0
U.K.	41.1	38.2

Source: ERC Statistics International Ltd.

ceuticals are also cited. The study reportedly provides an up-to-date examination of aerosol consumption in seven of Europe's major markets, focusing on current directions in user market performance and areas of potential market expansion into the 1990s.

For more information on the study, circle Reader Service No. 485.

Ball, Yamamura Will Develop Japanese Beverage Can Market

Anticipate building a Japanese can plant

Ball Corp. and Yamamura Glass Co. Ltd. of Nishinomiya, Japan, have entered into an agreement to begin developing a market for lightweight metal beverage cans in Japan. This move is in anticipation of building and operating a beverage can manufacturing facility in Japan "in the future," according to a statement released by Ball. The firm says

it is taking steps to establish itself in the burgeoning market for metal beverage containers in the Pacific Rim.

Under the agreement, Yamamura will substantially increase its imports of beverage cans and can ends from Ball plants in the U.S., for sale in Japan. The agreement with Ball marks Yamamura's entry into the metal container industry. The firm is Japan's largest manufacturer of glass bottles.

When the market is developed and a Japanese plant is built, Ball says it will provide state-of-the-art technology to manufacture two-piece aluminum or steel beverage cans and easy-opening can ends. Ball will also provide design and engineering assistance, and will train Japanese can makers at Ball plants in the U.S.

RECYCLING NEWS

Waste Group Receives Art Grant

Funds to be used for design database

What's the National Endowment for the Arts doing awarding a grant to the Packaging Coalition for Solid Waste Management?

Though it may sound strange at first, Stewart Mosberg, president of the coalition, says the grant makes sense when you think of packaging as "a disposable art form." Mosberg, who also is president of the Package Design Council, says the grant will be used to help the coalition fund its design-related programs. "It is a victory," he says, "for all those in the packaging design field so concerned with taking appropriate steps to protect our environment."

The idea that packaging de-



Disposable art is an appropriate description of packaging, says the National Endowment for the Arts, which has awarded a grant to the Packaging Coalition for Solid Waste Management.

sign can be a means of reducing trash often seems to be underemphasized these days while landfilling, incineration and recycling get most of the attention, Mosberg says he knows why: "Designers have been creating

packaging that is hard to dispose of because easy disposal has not been their objective." But, he notes, use of better materials or perhaps fewer materials could indeed help ease the waste crisis.

To illustrate this, he describes

wasteful use of cushioning and oversized corrugated cases. "A better design could make use of less material and provide better protection," he says. To aid designers in creating efficient packaging, the coalition will make a computer database accessible to its members. "It will be a source that package designers can go to to create more environmentally sound packaging," Mosberg says. "To create a better lifestyle, designers have to be informed."

Yet he also notes that source reduction is not the only answer. "We suggest that incineration in a controlled fashion—as practiced in Europe and Japan—is one promising solution. Recycling is also a part, but a small part."

Done properly, he says, incineration is recycling. "The real point is reclamation—the idea of taking in trash and turning it into something else. Incineration can turn it into steam."

For more information about Mosberg's group, write the Packaging Coalition for Solid Waste Management, Inc., P.O. Box 979 Planetarium Station, New York, N.Y. 10024-0979.

DuPont, State To Test 'Alloys'

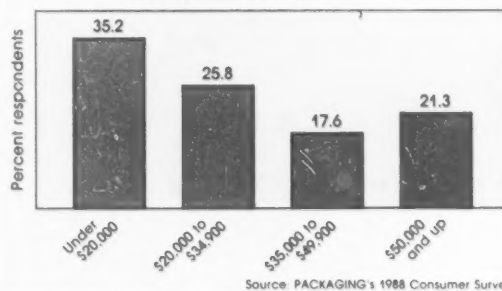
Waste plastic may find new use on highways

If all goes well, highway construction and maintenance products made from recycled milk jugs and soft-drink bottles will be in use by the Illinois Department of Transportation within a year. The DuPont Co. and the State of Illinois recently announced formation of a plastics recycling development partnership to develop and test a range of products for use by the IDOT.

DuPont has conducted a great deal of research into combining diverse plastics with "compatibilizers" in order to form plastic alloys. These materials perform as well as virgin resins in some applications.

Karen A. Witter, director of the Illinois Department of Energy & Natural Resources, says "highway construction is the perfect arena in which to test products made from recycled plastics with the goal of demonstrating they can meet the highest standards for quality and performance."

WHO WOULD VOTE FOR A CONTAINER-DEPOSIT LAW?



Income Affects Bottle-Bill Support

Those earning least like deposits most

Opinions gathered by PACKAGING's 1988 Consumer Survey show that support for container-deposit laws, or "bottle bills," seems to generally decrease with respondents' income.

Of the consumers reporting that their state had no container deposit law, 35.2 percent having incomes under \$20,000 said they would vote to enact such a law. Slightly more than 25 percent

having incomes in the \$20,000 to \$34,999 range said they would support a bottle bill.

Only 17.6 percent in the \$35,000-49,999 income bracket said they would do so. Interestingly, support for this type of law rose by almost four percentage points between the \$35,000-49,999 bracket and the \$50,000-and-up bracket.

A full report on results of PACKAGING's 1988 Consumer Survey will appear in the June issue.

Steel Maker Devours Cans

Company sees waste helping ease shortage

In cooperation with the Steel Can Recycling Institute, Pittsburgh-based Lukens Steel is now recycling more than 225 million steel cans a year.

"Increased efficiency in steel-production technology and the manufacturing processes employed by steel users have combined to create a shortage of steel scrap from traditional sources," says Edgar Fogelman, Lukens vice president. "Steel cans provide an alternative raw material source."

Lukens currently buys more than 1,000 tons of steel scrap each month from two municipal recycling companies. Each year, the Lukens program alone could keep 24 million pounds of steel trash out of landfills in the Pittsburgh area.

The SCRI was established last July by six domestic producers of tin-plate products for the purpose of promoting and sustaining the recycling of steel cans.

TAMPER-EVIDENCE IN PERSPECTIVE

Now that the furor of 1986 has calmed, it's time to consider what more can—and can't—be done to protect packaged food and drugs

By Melissa Larson
Senior Editor

In the frightening days of 1986 and early 1987, when tampering incidents were in the newspapers daily, and no one knew which products might be next, it was hard to see beyond putting out the next fire.

Dealing with recalls, answering the public's concerns and quickly converting to tamper-evident devices absorbed packagers' attention—whether their products were directly involved or not.

In the relative calm of 1989 (the Chilean grape incident notwithstanding), there is time to step back and try to gain a perspective on the long-term issue of protecting retail products from tampering.

Have food packagers done all they can do? Which product categories are still vulnerable? Has tamper-evident technology hit a plateau? And how are we to further educate consumers to check for tampering as a matter of habit?

PACKAGING has gathered some of the latest research and commentary on the nation's current tamper-evident state-of-the-art. Experts in tamper-evident packaging at

Arthur D. Little, as well as forensic packaging expert and attorney Walter Stern, have contributed to this report.

As you read their comments, keep in mind the marketing factors and public pressures which will affect tamper-evident packaging in the 1990s, regardless of the advance of new technology.

For instance, rising public concern over solid waste makes the idea of "less packaging" an attractive one to some consumers. Many tamper-evident packages have relied on the addition of an extra layer of packaging—a paperboard carton or shrink-wrap—to thwart entry or make it more obvious. How will consumers balance tamper-evidence against what they sometimes perceive as "overpackaging"?

Much has also been written about the difficulties tamper-evident packaging can pose to the elderly and arthritic. Packaging consultants Kline & Company have forecasted a "dramatic shift to plastic and plastic composite tamper-evident packaging devices" by 1993—those gains to come almost entirely at the expense of metal devices. Perceived easier opening of plastic tamper-evident devices is one of the main rea-

Packagers are beginning to put the issue of tamper-evident packaging into perspective in 1989.

Solid-waste concerns and other marketing factors may affect consumer acceptance of tamper-evident packaging

sons, according to Kline.

Also significant is the continuing trend toward bulk sales of such items as candy, dog biscuits, cookies, nuts, salted snacks, dried fruits and the like. Consumers seem to like the idea of picking and bagging more of their own choices, even if the item is available elsewhere in the store in a sealed package. It is hard to imagine any way these bulk items could be protected.

Consumer awareness

Educating consumers to look for signs of tampering is a major theme of this report. Most researchers agree that obvious visual packaging signals of tampering are the only way to insure that shoppers will notice that something is wrong.

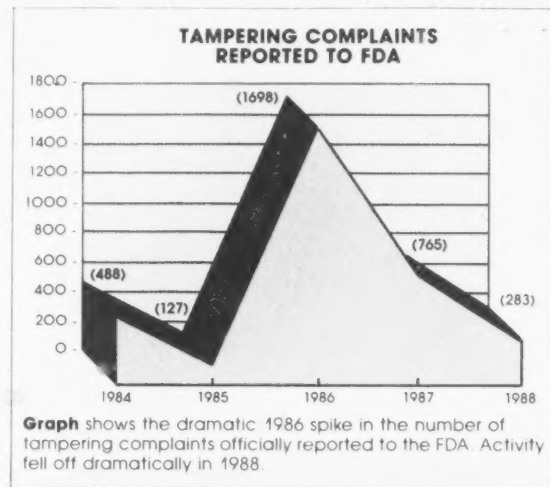
But in order to notice anything amiss, there must be a heightened awareness on the part of the consumer, and increased communication between the product's marketers and consumers about what a particular product *should* look like on the shelf.

There is some good news regarding consumer awareness of tampering. According to PACKAGING's latest Consumer Survey, the results of which will appear in the June 1989 issue, the percentage of consumers who avoided purchasing a food or drug product in the last six months because the package appeared to have been tampered with rose from just over 31 percent in 1987 to just over 50 percent in 1989.

Industry committee

Food industry cooperation on joint matters of tamper-evidence and crisis preparedness has apparently succeeded so well that the ad-hoc committee charged with discussing tamper-evident packaging has disbanded.

Two years ago, PACKAGING reported on a special forum of major food processors which met several times under the auspices of the Na-



Ross' Murine eye drops are protected by on-line coded shrink-wrap bearing the firm's logo, rather than by pre-printed wrap, which can be stolen or duplicated.

tional Food Processors Association to discuss tamper-evident problems unique to the food industry. That forum has disbanded, according to Dr. Michael Kashtock, who originally convened the group.

"Basically, we were able to give participants an opportunity to exchange information, to define what was feasible in the area of food tamper-evidence, and to discuss approaches based on then-available tamper-evident systems," he explained.

He added that the group had originally considered distributing some general guidelines to the food industry at large. However, it had been

decided that most food firms were responding "in a low-key but effective manner" to implement tamper-evident packaging and other measures, and that such a distribution wasn't necessary.

"If you surveyed our members, you'd probably find that there's been a leveling-out of activity in tamper-evidence," he added. Indeed, there is general agreement that, for the food product categories where some sort of currently available tamper-evident system is effective, conversion has already taken place.

An objective method for use by food processors in identifying which tamper-evident systems will work

best for their products, based on packaging integrity and marketability, has grown out of extensive tampering research conducted by Battelle.

In a report given at Pack Alimentaire '88, James R. Profitt of Battelle's Columbus Division outlined an evaluation approach based on weighing such factors as redundant tamper-evident protection, product category similarity, ease of consumer entry, package/product cost ratios, and difficulty of tamper-evident component removal and reassembly by a potential tamperer.

New approaches

Meanwhile, there are new approaches being made available now for tamper-evidence.

For instance, at least one major eye-care marketer is marking its shrink-wrap on-line with an ink-jet coder, rather than relying on pre-printed shrink-wrap. By coding the shrink-wrap on-line with the firm's logo or other easily-identifiable mark, it becomes far less likely that the shrink-wrap could be removed and a facsimile wrap reapplied by a tamperer, without evidence.

Tear-rings combined with flip-top caps into one wide-mouth closure are now available to protect products in wide-mouth containers which need to be opened and closed many times, such as vitamins and analgesics. This type of closure also addresses the easy-opening needs of many consumers.

However, the nagging thought remains: what about cartoned milk? What about candy? What about fresh produce? What about bread? So many of the staple foods American consumers count on cannot now be made tamper-evident without radical packaging changes. New packaging technology and consumer acceptance of risk may have to meet where certain retail products are concerned. □

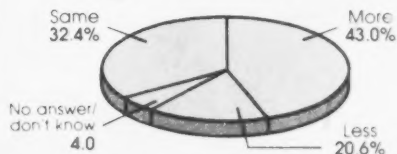
SIMPLICITY AND MAINTENANCE ARE KEY MACHINERY CHARACTERISTICS

RANK

1. Simplicity of changeover
2. Ability to clean without disassembly
3. Maximum speed
4. Extra guarding for safety
5. Clean up/changeover without tools
6. Ability to handle wide range of materials/containers
7. Diagnostic panel lights & alphanumeric displays
8. Open construction for accessibility
9. Built-in programmable controllers
10. Price

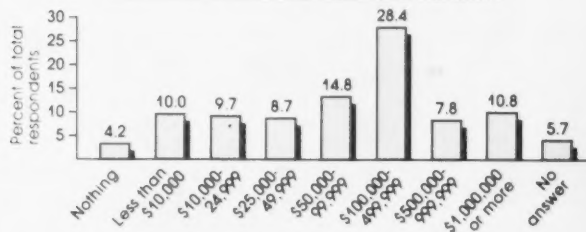
'89 PURCHASE PLANS ARE BULLISH

Percent of total respondents



Slowdown? What slowdown? A majority of respondents say they plan to increase their spending on packaging machinery this year

PLANNED SPENDING REMAINS HEALTHY



The highest percentages of respondents planning to buy packaging machinery in 1989 say they will spend between \$50,000 and \$499,999.

Plans Point To Growth In Sales Of Equipment

By Greg Erickson
Senior Editor

If there's an economic downturn in the offing, you wouldn't know it by asking packagers about their equipment plans.

In a report published last March, Cahners Economics saw U.S. economic growth in 1989 slowing to 2.2 percent—about half its 1988 pace. This was seen not as a sign of a recession but as a sort of respite prior to another surge in the 1990s. Cahners Economics noted that the most important factor behind the economy's slight weakness was a continuing slowdown in the industrial sector.

That may have been so, but packaging professionals responding to PACKAGING's 1989 Equipment Survey said they could foresee their equipment purchases remaining strong throughout 1989—and even on into 1990. A total of 1,200 representatives of companies from SIC 20 (Food and Kindred Products) and SIC 28 (Chemicals and Allied Products) responded to the Jan. 1-Feb. 1 survey.

The respondents were in a position to know what they were talking about. More than 60 percent said they had authority to determine need for new packaging machinery, 54.1 percent said they

specified or set requirements for such equipment and 56 percent said they selected and/or evaluated suppliers. Nearly 44 percent said they were charged with approving all equipment purchases.

43 percent to spend more

Exactly 43 percent of the surveyed managers reported that they expected their companies to spend more on packaging equipment in 1989 than they did in '88. Slightly more than 30 percent said they would spend the same this year as they did last year. Only 20.6 percent said they would spend less.

Responding professionals came from a wide range of packaging operations. Slightly more than four percent reported that their packaging facility was brand-new—built and opened sometime during the preceding 12 months. Slightly more than 32 percent said their facility had undergone a major renovation over that period, including the addition of new packaging lines. Nearly 58 percent said their facility had not changed in the past year.

Roughly 16 percent of the respondents described their facility as having one to 49 employees. About 19 percent said their location employed between 50 and 99 people. More than 25 percent estimated the work force at 100

Packaging pros in exclusive survey foresee strength in machinery market

to 249 individuals; 16 percent came from companies employing 250 to 499 people; 12 percent came from companies having 500 to 999 employees. Only 11 percent counted 1,000 employees or more.

The average amount spent by foods-segment respondents on packaging equipment in 1988 came to \$298,505, the study revealed. The average spent by those in the chemicals segment was \$318,159. Average spending estimates for 1989 were higher, demonstrating continued faith in a strong economy: foods, \$302,962; chemicals, \$359,072.

Expenditures this year in some equipment categories may fall from '88 levels if our respondents' predictions hold true. In most instances this appears to be merely a result of market saturation. For example, the percentage of respondents planning purchases of stretch-wrapping equipment this year fell by five points from the percentage who reported such plans last year. That could be ex-

Respondents have big plans for metal detectors, machine-vision systems and in-line coders

MACHINERY IN USE, FOODS/'88-'89

Equipment	Number in use 1/88	Number in use 1/89
Bagging, preform bags	7,818	8,004
Bar coding/scanning	4,470	4,618
Blowmolding	976	1,007
Bottle cleaning	4,514	4,699
Bottle unscrambling	2,202	2,308
Bundle wrapping/banding	7,924	8,058
Capping	7,397	7,517
Cartoning	7,604	8,027
Case closing/sealing	19,694	20,507
Case forming	9,253	9,097
Case packing	16,535	16,667
Checkweighing	24,118	24,461
Coding and marking	35,361	36,223
Conveying	144,398	147,889
Filling, dry	7,497	7,814
Filling, liquid	18,266	19,050
Form-fill-sealing, horizontal	9,480	9,789
Form-fill-sealing, vertical	8,538	8,765
Gluing, hot-melt	33,739	33,633
Jet printing	14,166	14,737
Label imprinting	4,188	4,368
Labeling	25,473	26,086
Line dividing/conveying	13,206	13,503
Metal detecting	20,001	20,289
Neck banding/body sleeving	618	670
Net weighing	6,050	6,279
Overwrapping	5,563	5,788
Palletizing	14,416	14,496
Shipping tray forming/closing	3,027	3,168
Shrink wrapping	6,683	6,967
Stapling	2,259	2,302
Strapping	4,208	4,369
Stretch wrapping	11,372	11,644
Taping	21,142	21,455
Timing screws	13,653	14,137
UPC scanning	1,970	2,082
Uncasing	3,799	3,977

plained in part by what stretch-wrap machinery manufacturers have told PACKAGING about their 1988 sales. One of them called '88 the best year in the history of his industry.

10 percent spend millions

In PACKAGING's 1989 Equipment Survey, the highest percentage of all respondents said they planned to spend between \$100,000 and \$499,999 on packaging equipment this year. More than 10 percent of respondents said they expected to spend upwards of a million dollars.

The price of equipment was described as important to the buyers surveyed by PACKAGING. But it was not ranked as high in importance this year as it was last year... and not as high as equipment convenience and speed of changeover in either year.

In 1989, when asked to list machinery characteristics in order of importance, survey respondents ranked those denoting simplicity, safety and accessibility higher than price. Almost 44 percent of the combined foods and chemicals respondents—the highest percentage awarding

the "extremely important" ranking to any one machine characteristic—called simplicity of changeover most crucial. Only 19.2 percent gave the "extremely important" ranking to price.

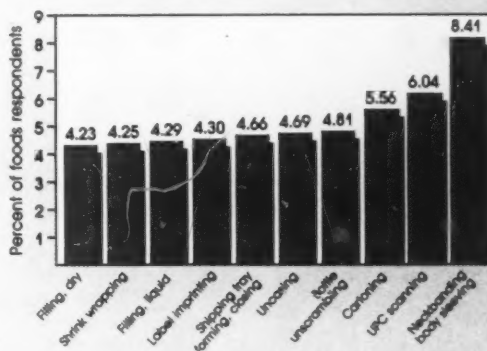
Using information supplied by survey respondents in 1988 and 1989, PACKAGING has been able to project in-use figures for each of 43 machinery categories.

In-use figures projected

Not all types of equipment rose equally in use nationwide from 1988 to 1989. In fact, some categories actually saw a negative change. Among the 10 types of equipment experiencing the greatest rise in use from one year to the next were label-imprinting systems, which grew from 4,188 units in '88 to 4,368 this year. The number of UPC scanners in use '88 to '89 rose from 1,970 units to 2,082—an increase of more than six percent. Neck banding/body sleeving systems led the pack with an in-use growth rate higher than 8.4 percent.

In two categories—case-forming systems and hot-melt gluing systems—the number of machines in use

BANDING LEADS MACHINERY GROWTH



Expected to see the biggest increase in use 1988 to 1989 among foods respondents are neck-banding and body-sleeving systems, most likely as tamper-evident features.

1988-1989 decreased. This appears to be a temporary situation, since 11 percent of the '89 respondents said they planned to purchase case formers this year and 15.7 percent said they would buy hot-melt systems.

Statistics accumulated over the past two years have enabled PACKAGING to track changes in the percentages of respondents planning purchases from one year to the next. Among machine categories with the biggest increases in percentage of respondents planning purchases were these: metal detecting, cartoning, palletizing/depalletizing, machine vision and in-line coding systems.

Among equipment categories seeing the biggest drop in this percentage were conveying, liquid filling, checkweighing, labeling and stretch-wrapping systems. Keep in mind that these decreases do not necessarily spell trouble for manufacturers and distributors of such systems. For instance, even though the percent of respondents planning to buy labeling equipment this year dropped five points from last year, a healthy 14 percent still are planning to buy. Likewise, the percentage of respondents planning new purchases of case closers/sealers fell by three points and that for case formers fell one point; yet growth in sales of both types of systems is expected to continue.

First-time buyers jump in

Reasons for some of the growth in case-handling equipment, as well as in inspecting and labeling marking equipment, must include the effect of companies making first-time purchases. Of the 12.8 percent of respondents who said they would buy case-packing equipment in 1989, one-quarter called their companies first-time buyers in this equipment category. Of the 22.2 percent planning to purchase jet

printing systems in 1989, almost one-quarter said they would be buying such equipment for the first time. And of the 12.9 percent saying they would purchase palletizing/depalletizing systems in 1989, almost exactly one-third described themselves as first-time buyers.

It's in the area of inspection systems that some of the most significant relationships between high future purchase rates and high percentages of first-time buyers were recorded. Of the more than 10 percent of respondents who said they intended to buy UPC scanning equipment and machine vision systems in 1989, close to half of them said they were first-time buyers.

Answers to another survey question set the stage for significant growth in the inspection-systems area. Queried about their rate of inspection and both current and projected use of automatic inspection systems, respondents replied that as their inspection rates went up, so did their use of automatic inspection systems and their projected use of these systems between now and 1990.

Also worth noting are answers to questions regarding the market penetration of robotics. Asked whether any of their machines utilized robotics, only 9.7 percent of the foods respondents and 14.0 percent of the chemicals respondents answered affirmatively.

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Outstanding	5/1
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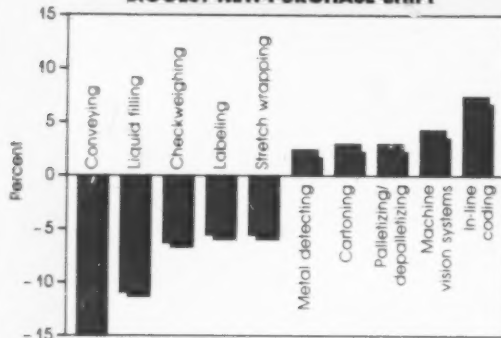


GREG ERICKSON
Senior Editor

"The economists in the White House may have more up-to-date information than

PAKING's Equipment Survey can dig up about where the whole U.S. economy is going, but they can't match the survey in pinpointing packaging machinery expenditure trends."

CODING, VISION SYSTEMS SHOW BIGGEST NEW-PURCHASE SHIFT

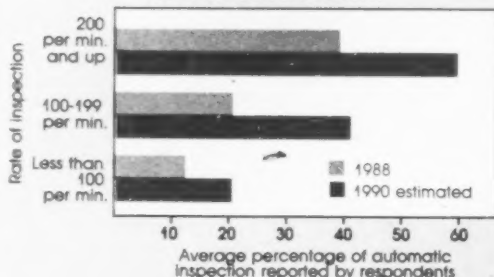


Among the leaders in terms of the increase in percentage of survey respondents planning purchases in the coming 12 months are metal detectors and machine-vision systems.

CODING, LABELING AND WEIGHING SYSTEMS SHOULD BE HOT THIS YEAR

Equipment	Plan to buy in next 12 months	First-time buyer in this category
	percent of total respondents	percent of this figure
Case closing/sealing	14.6	14.8
Case forming	11.0	24.8
Case packing	12.8	25.2
Palletizing/depalletizing	12.9	32.5
Checkweighing	19.2	20.1
Machine vision	10.3	47.7
Metal detecting	14.5	17.8
UPC scanning	10.5	44.3
Bar coding/scanning	13.6	37.9
Coding and marking, in-line	21.1	12.9
Jet printing	22.2	23.2
Labeling	19.0	14.8

AUTOMATIC INSPECTION GROWS SIGNIFICANTLY



As the rate of inspection rose in 1988, so did the use of automatic inspection systems. Their use is expected to rise significantly by 1990.

PACKAGING

THE CAHNS MAGAZINE FOR DECISION-MAKERS/JUNE 1989

EXCLUSIVE: WHAT PACKAGES CONSUMERS BUY

Getting Great
Detail On Labels

New Line Automates
By Sections

Vote For '89
Awards



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RECYCLING NEWS

Snack-Bag Essay Promotes Recycling

Tiny popcorn producer urges consumer action

In the upper left-hand corner of every shiny green-and-yellow bag of Annie's All Natural Popcorn, just above the smiling face of Bernie, Annie's "rabbit of approval," is this statement: "Support Recycling."

On the back of the metallized polypropylene bag is a lengthy essay titled "Why Recycle?" It begins, "Ancient civilization left us the pyramids of Egypt, the cities of the Incas and the Parthenon of Greece. Modern man will leave millions of tons of plastic packaging that takes centuries to degrade."

A plastic package used to criticize plastic packaging? What's going on here?

The essay continues, "This is not a recyclable bag, but it could



'Support Recycling' says the front of each bag of Annie's All Natural Popcorn. On the back is a call for consumer action and Annie's promise of funding for environmental and recycling legislation.

be. At Annie's we don't make enough bags to make it practical for recycling companies to recycle our bags. However, the snack giants use billions of nonrecyclable bags. Our bags plus their bags would make recycling practical."

Further on, the phone num-



bers of two snack-food giants, Borden Corp. and Frito-Lay, are listed along with the name and number of a pro-recycling U.S. senator. "Your call or letter will only take a minute," reads the popcorn bag, "but can help the environment forever."

This is an unusual way to use

packaging, admits Andrew Martin, but then he and his wife Ann Withey are co-founders of an unusual snack-foods company. Annie's Inc. has pledged to contribute one percent of its gross income each year to pro-environment organizations. On New England store shelves only since March 1, Annie's popcorn is a huge hit. Sales could top \$1 million this year. Thus the amount going to environmental activists would exceed \$10,000.

Says Martin, "We'd love it if the rest of the industry would do the same. If all the snacks companies would put that one percent away now, it would save them a lot of pain later." He insists he and his wife are not using their popcorn bag to attack Borden or Frito-Lay. "We're using the package as a means of communication from consumers to the industry. This was the only way we could generate support so that the companies know the people want recycling."

Martin says Annie's has several new products on the works and that the packaging for each of them also will be used to campaign for recycling. "Annie and I live on a farm," he explains. "The environment is the number-one key issue for us."

PET Bottles Said To Save Energy

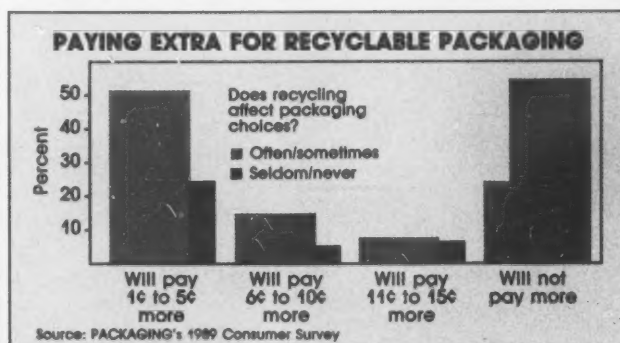
Study asserts they are highly efficient

A new study of polyethylene terephthalate soft-drink bottles by Franklin Associates asserts that PET containers are highly energy-efficient.

Commissioned by the National Association for Plastic Container Recovery, the study followed PET bottles, glass bottles and aluminum cans from cradle to grave to measure the energy consumed and waste produced by the competing containers.

One of the conclusions: At equivalent recycling rates, PET containers contribute less air pollution and are more energy-efficient to make and recycle than containers made of glass or aluminum.

Luke B. Schmidt, president of NAPCOR, says his group's objectives are to "promote plastics recycling and to achieve a 50 percent recycling rate for PET bottles by the end of 1992."



Pro-Recycling Consumers Will Pay

Most will spend extra for "friendly" packages

Of all the consumers who responded to PACKAGING's 1989 Consumer Survey, most say they are willing to put their money where their mouth is regarding packaging and the environment.

Among those who say the recyclability of packaging often or sometimes affects their purchasing decisions, 73.6 percent say they are willing to pay some-

thing extra to obtain packaging that is easily recyclable. More than 25 percent, however, say they will pay nothing extra.

Even among consumers who say the recyclability of packaging seldom or never affects their purchasing decisions, 41 percent say they are willing to pay something extra for easily recycled packages.

A full report on consumer responses to other environment-oriented questions in the survey will appear in PACKAGING's August issue.

Aluminum Sets A New Record

Recycling rate reaches 54 percent

The Can Manufacturers Institute reports that Americans recycled a record 42.5 billion aluminum soft-drink and beer cans in 1988, raising the national recycling rate to 54.6 percent.

"Clearly," says Michael Dunn, CMI president, "1988 was another banner year for the aluminum beverage can. We're moving well along toward our goal of attaining at least a 75 percent national aluminum-can recycling rate by 1995."

If that goal is reached, Americans will be recycling roughly 90 billion cans a year—nearly twice the number recycled today.

Dunn notes that the saving in energy is an extremely important benefit of aluminum recycling. Making a new beverage can from recycled aluminum requires only five percent of the energy needed to make a can from raw ore.

EXCLUSIVE PACKAGING SURVEY

CONSUMER OPINIONS POINT TO PACKAGING PROFITS

PACKAGING's exclusive study reveals the reasons shoppers stop and buy a package . . . or keep on walking

By Greg Erickson Senior Editor

Let's face it: The consumer is either your direct customer, your *customers'* customer or your customers' *customers'* customer. Consumer attitudes affect your bottom line in a significant way.

Keeping the customer satisfied, a sound business philosophy, is never a sure thing. It's next to impossible if you don't have a clue what the customer wants.

When the typical consumer goes shopping for foods or pharmaceuticals, his or her decision to either give an unfamiliar product a try or grab an old standby is made in seconds. Just by seeing packages on the shelf and holding them in the hand, shoppers make rapid-fire judgments. Then they either buy or walk away . . . without explaining why.

Which package characteristic—preservation of flavor, tamper-evident features or some other—is most highly valued by consumers? Which packaging material—metal, glass, plastic, paper—do they prefer for vegetables? For fruit? For soft drinks?

Is "convenient to open" or "value for the money" most important in pharmaceuticals packaging? How does child-resistant packaging fit into the consumer's

thinking?

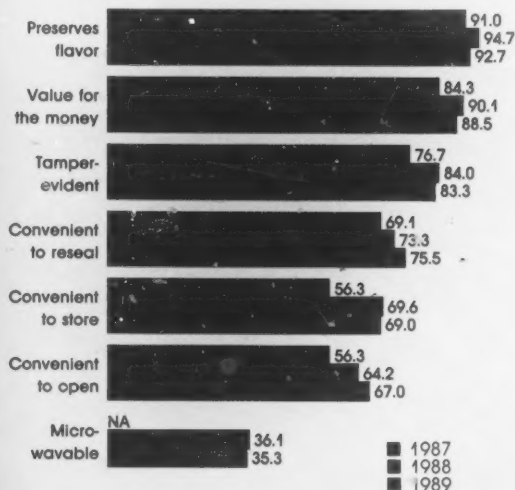
In this age of dwindling landfills and homeless garbage barges, how important is recycling becoming to the typical shopper? And just how often do consumers consider the environmental impact of packaging when making a purchase?

To provide manufacturers, suppliers and users of packaging with reliable information on changing consumer attitudes, PACKAGING conducts a nationwide survey each year. Prepared with assistance from a leading consumer-opinion research firm, the questionnaire is mailed to a demographically representative sample group. This year, of the 1,000 mailed, consumers filled out and returned 694. As a result, the margin of error is a narrow plus-or-minus four percent.

PACKAGING's survey gives consumers a chance to explain their decisions—to speak their minds on a wide range of packaging-related issues.

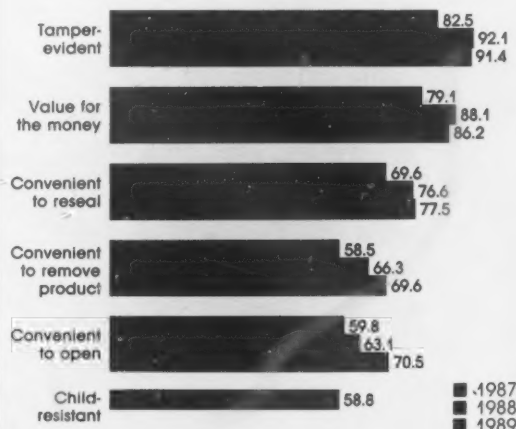
We have tabulated responses to the 44 questions by age group, lifestage (young, middle-age and older singles, couples and parents), geographical region, education and income. They are sure to have an impact on your business in the months—maybe years—to come.

FLAVOR IS NUMBER ONE



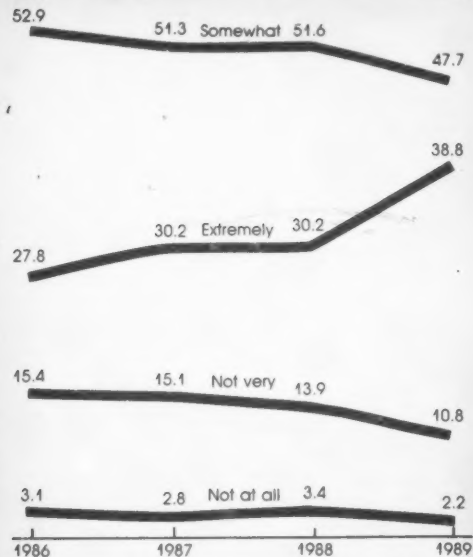
Asked to rank food-package characteristics that were "extremely/very important," respondents put flavor at the top and microwavability at the bottom once again.

TAMPERING IS STILL A CONCERN



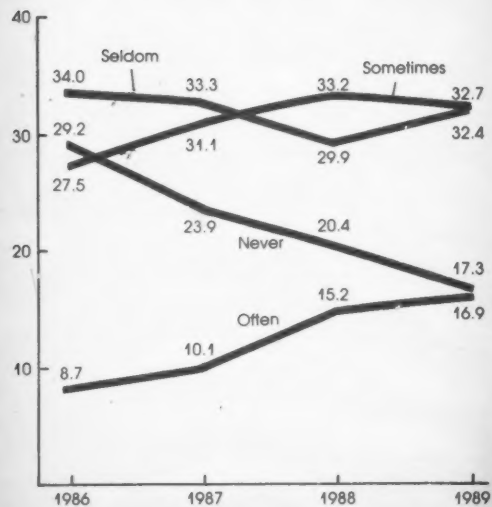
Tamper-evident features are still most important in pharmaceuticals packaging, topping "value for the money" for the third year in a row. Opening convenience continued its steady climb.

RECYCLING GROWS IN IMPORTANCE...



How important is recycling? Consumers say it's of growing interest, as shown by the big jump in the percentage replying "extremely."

...AND AFFECTS PURCHASE DECISIONS



How often do consumers consider the recyclability of a package when selecting products? Only the percentage of consumers saying they often consider it has risen every year.

The consumer wants food that can be zapped, but won't accept less quality overall to get it

Early in the survey questionnaire, we asked recipients to rate characteristics of foods and pharmaceuticals packaging in order of importance.

For pharmaceuticals, tamper-evident features and "value for the money" were rated the two most important package characteristics this year, as they were in 1988. Only one characteristic, "convenient to open," rose by more than four percentage points—a statistically significant increase. That attribute was voted most important by a higher percentage of consumers in the older-singles lifestyle than any other. Similarly, a high percentage of retired older couples said convenience of removing the product and resealing the package were most important.

Those findings coincide with previously documented consumer criticism of pharmaceuticals closures, especially those that are child-resistant. Many consumers—older ones in particular—find child-resistant packaging to be effectively adult-resistant too.

Yet over 91 percent of young parents—the highest percentage of respondents in any lifestyle—said child-resistance was the most important package characteristic for drugs. Only 44.1 percent of young singles called child resistance extremely/very important.

In foods packaging, "preserves flavor" and "value for the money" were rated most important. Those characteristics have occupied the top two spots for three years.

Much as they did regarding pharmaceuticals, more retired older couples than members of any other lifestyle called "convenient to open" and "convenient to reseal" the most important characteristics for food packages.

Other highest percentages of extremely/very important votes by lifestyles: "tamper-evident," retired older cou-

ples; "preserves flavor," young parents; "value for the money," middle parents; "convenient to store," older parents; "microwavable," older singles.

No zoom in zappability

That last attribute, microwavability, has remained at the bottom of the total respondents' most-important lists from 1988 to 1989. At first that may seem at odds with statistics showing ever-greater use of microwave ovens. PACKAGING's Consumer Survey itself has revealed a rise in microwave oven use from 65.2 percent in 1986 to 84.6 in 1988. However, the growth rate slowed substantially from 1988 to 1989, rising only one-and-a-half points.

Why is that? For a rationale we went to a recent report by the research firm Find/SVP. It contains three common-sense reasons for what might be called the microwave plateau.

First, says the firm, many foods manufacturers initially ignored the microwave, then belatedly took interest and rushed into the market with ill-conceived products. Second, Find/SVP calls the variety of microwavable foods insufficient. And finally, according to the firm, the growth in microwavable food products has been stymied by a lack of new packaging technology.

In conclusion, the report says a major challenge faces marketers of microwavable products: They must answer consumer demands for microwave foods offering the taste, texture and overall high quality available from conventionally prepared products, and do so at a price consumers will accept. Not all succeed.

The best way to interpret the last-place position of microwavability in the package-characteristics ratings is to realize that the consumer wants foods that can be zapped in the package but won't give up flavor or value

to get them.

The importance of environmental issues has grown dramatically in the consumer's mind in the past year after remaining nearly flat 1986-1988. The consumer has clearly begun considering the recyclability of packaging materials when making purchase decisions. Exactly how big an effect that will have on packaging design and cost is a controversy of great concern to makers and users of packaging equipment and materials. Much of the 1989 survey was allocated to that

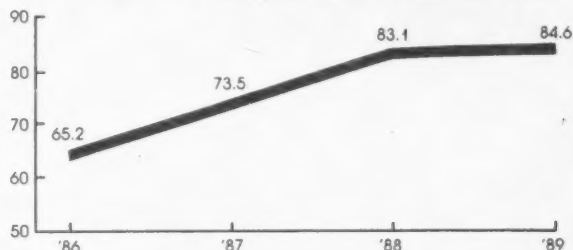
FROZENS RETAIN THEIR LEAD

Unrefrigerated/
shelf-stable Nonfrozen/
refrigerated



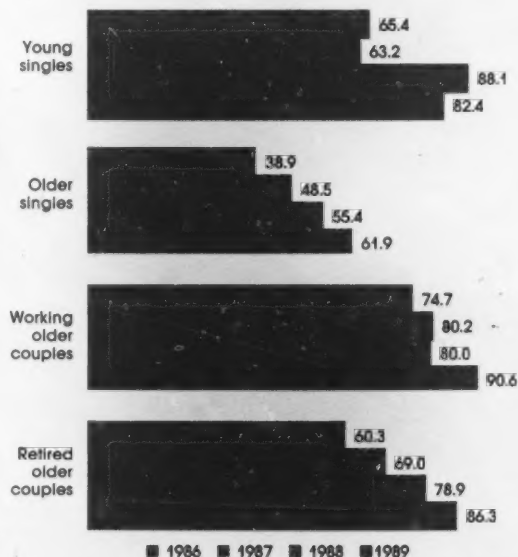
If the same entree or dinner were available in all three forms, consumers would overwhelmingly keep buying frozen.

MICROWAVE USE LEVELS OFF GENERALLY...



Dramatic jumps each year through 1988 brought microwave use up to 83 percent among survey respondents. Now a cooling-off period seems to have started.

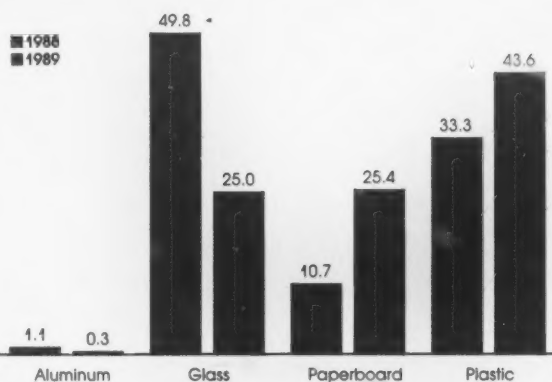
...BUT GROWS AMONG OLDER CONSUMERS



Older consumers lead the pack in increased microwave use. The percentage of young singles using microwaves fell by a surprising six percent.

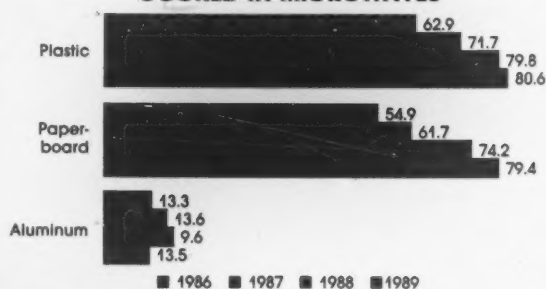
Many consumers—older ones in particular—view child-resistant drug closures as adult-resistant, too

PAPER, PLASTIC LEAD IN MICROWAVE USE...



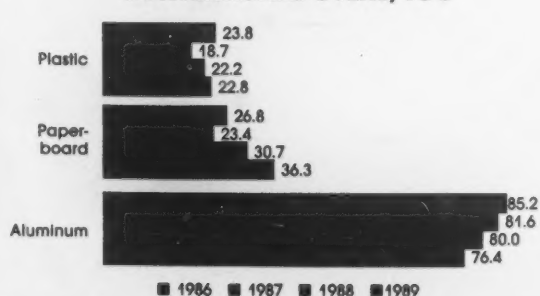
Shattered by paperboard and plastic, preference for glass as a microwavable food-container material is now half what it was a year ago.

...AND FOR FROZENS COOKED IN MICROWAVES



Paperboard moves ahead again in consumer preference as a packaging material for microwavable frozen foods. Aluminum continues to zig and zag.

...WHILE GROWING IN CONVENTIONAL OVENS, TOO



Aluminum leads as a frozen-food container material for use in the conventional oven, but paperboard seems to be gaining, perhaps because consumers see only paperboard as truly dual-ovenable.

subject. Full results will be published in the August 1989 issue of *PACKAGING*, which will be devoted almost entirely to packaging's environmental impact. (See box.)

Surprises everywhere

For the survey's Food Package Materials Ratings, consumers stated their preferences for various package types. There's a surprise almost everywhere you look.

According to data from the Canned Food Information Council, cooked pasta is among the top three canned food products in terms of retail sales. Yet consumers revealed in both 1987 and 1988 that they in fact favored cooked pasta in glass.

In 1989, consumer preference for glass as a package for cooked pasta fell by more than eight points. But metal cans did not benefit. Instead, it was paperboard—and to a lesser extent, plastic—that gained what glass lost. Paperboard also saw the only increase in consumer preference this year as packaging for beef stew. Both of those outcomes were likely influenced by the microwave oven: The percentage of consumers saying they liked paperboard most for use in the microwave more than doubled 1988-1989.

The metal can has risen in popularity over the survey years as the package of choice for tuna and tomato sauce, quite probably because those two foods are seldom if ever microwaved in their packages. But metal fell, as did glass, in the vegetables category while plastic gained almost nine points. The most plausible explanation is that the consumer has grown fond of plastic trays for frozen and shelf-stable vegetables intended for cooking in the microwave.

Glass lost points to plastic also in the fruit category, in part, we believe, because of the successful introduction of applesauce in single-serve plastic cups. They're increas-

ingly being included in brown-bag lunches—especially those prepared for children. And in fact, among singles, couples and parents, it was parents who gave plastic the highest percentage of preference votes as a packaging material for fruit.

Neck-and-neck for beer

Metal has gained considerably on glass as a container material for beer: The two materials are now less than one percent apart.

Beer-package preferences differ considerably by lifestyle. Almost 65 percent of young singles said they preferred beer in glass; 56.2 percent of retired older couples said they favored it in cans.

For soft drinks, material preferences by lifestyles went this way: 55.9 percent of young singles said they preferred glass; 35.6 percent of young parents preferred plastic; 33.0 percent of older parents preferred metal.

Paperboard seems to have taken points from both metal and plastic in the juice-drinks category. The reason may be a growing affection for the paperboard-based beverage brick. So far this package has been perceived by the consumer as chiefly intended for children. No wonder, then, that the highest percentage of respondents favoring paperboard packaging for juice drinks came from the young-parents lifestyle.

Warm, chilly or icy

This year for the first time, *PACKAGING* asked consumers to state their preference for one of three types of entrees and/or meals: unrefrigerated shelf-stable, unfrozen refrigerated and frozen. Frozen came out far ahead. The demise of refrigerated Culinova, a new advertising campaign for shelf-stable Top Shelf and the increasing competition for store freezer space may bring about a change in this ranking by next year's survey.

Whether frozen, refriger-



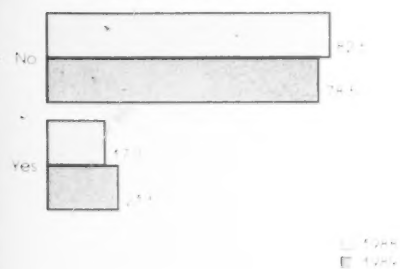
PLASTICS, PAPERBOARD GROW IN POPULARITY

	Glass			Plastic			Metal			Paperboard			No Answer		
	87	88	89	87	88	89	87	88	89	87	88	89	87	88	89
Cooked pasta	46.6	43.3	34.9	19.8	20.6	24.4	16.0	17.7	16.9	5.5	8.5	17.6	9.2	4.9	6.3
Beef stew	29.3	30.0	29.7	13.6	12.7	10.4	47.2	51.5	50.7	0.8	2.6	5.2	9.2	3.2	4.0
Tuna fish	9.8	6.9	6.9	10.1	7.8	4.6	74.6	82.4	85.3	1.0	0.5	1.0	4.4	2.4	2.2
Tomato sauce	30.0	30.4	26.9	14.8	10.3	9.4	44.9	54.9	57.5	3.5	2.5	3.2	6.8	1.9	3.0
Vegetables	25.8	20.4	16.9	18.2	17.5	26.4	45.5	51.5	44.2	4.7	8.7	9.5	5.8	2.0	3.0
Fruit	40.5	34.0	28.1	18.6	17.7	23.2	31.5	40.7	39.6	3.3	4.4	5.6	6.1	3.2	3.3
Soft drinks	34.3	41.3	37.6	28.0	26.3	28.2	30.5	28.6	29.3	2.1	1.1	2.2	5.1	2.8	2.7
Beer	39.5	45.1	40.8	7.2	4.9	6.1	34.1	36.8	40.1	1.0	0.8	1.2	18.2	12.4	12.0
Wine	68.9	81.1	76.8	7.9	4.2	6.6	4.0	2.2	1.9	1.5	1.5	1.6	17.6	11.0	13.1
Juice drinks	NA	55.2	50.9	NA	19.6	22.8	NA	11.5	6.6	NA	11.9	15.6	NA	1.9	4.2
Drinking water	NA	NA	43.2	NA	NA	48.3	NA	NA	0.4	NA	NA	2.4	NA	NA	5.6

Which packaging materials do consumers prefer for various foods? Through the years, tastes have changed considerably. Those that have changed most are highlighted.



REPORTS OF BAD TASTES AND SMELLS RISE...



AS MEATS GET A REPRIEVE



The bad news is that occurrences of unwanted flavors and smells are up this year over last. The good news for meat processors is that they're no longer taking most of the blame. Dairy foods are now the biggest concern.

Has the microwave reached its saturation point? After three big jumps, use seems to be leveling off

ated or shelf-stable, the entree or meal had better offer good taste, good value and, despite the 1988-1989 slowdown mentioned earlier, microwavability.

Although use of the microwave fell in some lifestages this year, it rose in others. In accordance with demographic changes collectively termed the "graying of America" or the "senior boom," increases in microwave use were greatest in three of the four lifestages designated by the adjectives "older" and "retired." The greatest single increase 1986-1989—almost 10 points—occurred within the past 12 months and among working older couples. This year the biggest decrease—5.7 points—occurred among young singles, a group that reported a huge 25-point increase just one year ago.

Among packaging containers used for microwavable frozen foods, paperboard saw the biggest increase 1987-1988 and another 1988-1989. Aluminum packaging for microwavable frozen foods has zigged and zagged too much—from 13 percent to 10 percent and back again—to establish a trend. A pattern is clear, though, in the movement of aluminum for frozen foods cooked in the conven-

tional oven: It's a steady decline.

Paperboard continued its rise in popularity for frozen foods cooked in conventional ovens, too. That is very likely a result of the consumer's perception of paperboard as a truly dual-ovenable material, even though dual-ovenability is not seen as a particular advantage over microwavability only.

Bad tastes and smells

For two years now, PACKAGING has inquired whether consumers have experienced bad tastes or smells in packaged foods and followed up by asking for a description of the offending product. Troublingly, affirmative responses to the first part of the question went up this year by 4.2 percent. But there's good news for meat processors in the second part: The percentage of consumers citing meats dropped by half as criticism shifted to milk and other dairy products.

In our 1989 survey we also asked consumers to tell us about taste migration from packaging materials in microwavable foods that were cooked in the package. More than 87 percent of the respondents said they had not noticed tasting anything but the food.

COMING IN AUGUST: CONSUMER OPINIONS ON THE WASTE CRISIS

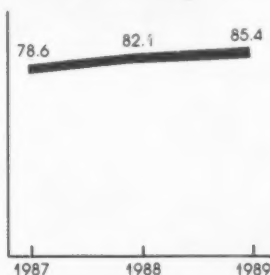
Statistics from PACKAGING's 1989 Consumer Survey show that the consumer is holding suppliers and users of packaging responsible, at least in part, for the world's waste crisis.

The environmental impact of packaging waste is a subject of great concern to all packaging professionals. In order to treat this subject in the comprehensive manner it deserves, PACKAGING will devote nearly the entire August issue to

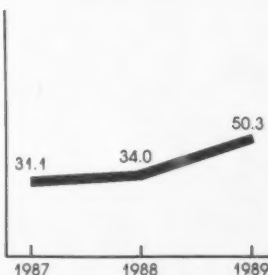
packaging and the environment.

Authorities in packaging, waste management and government will be interviewed at length on source reduction, recycling, incineration and landfilling. Also, statistics from this year's and earlier Consumer Surveys will present a realistic view of changing consumer attitudes on container deposits, current recycling efforts and package degradability among others.

CONSUMERS KEEP LOOKING FOR EVIDENCE OF TAMPERING...

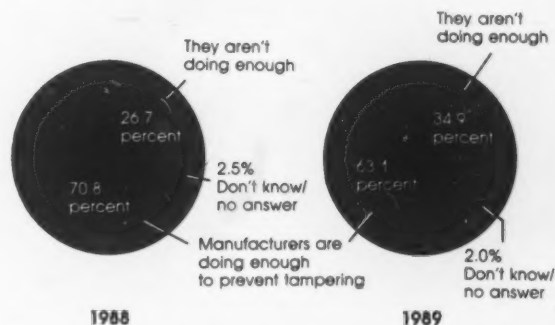


AND REJECT PRODUCTS WHEN THEY FIND IT...



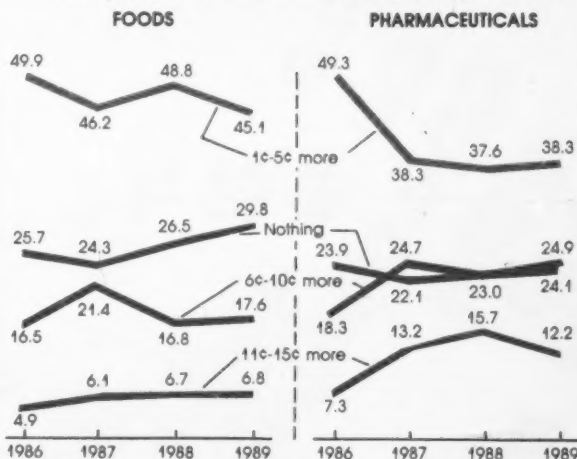
When they last purchased a food or pharmaceutical product, a growing percentage of respondents checked for signs of tampering. And product rejections for this reason are zooming.

...BUT STILL FEEL PACKAGERS ARE DOING A GOOD JOB...

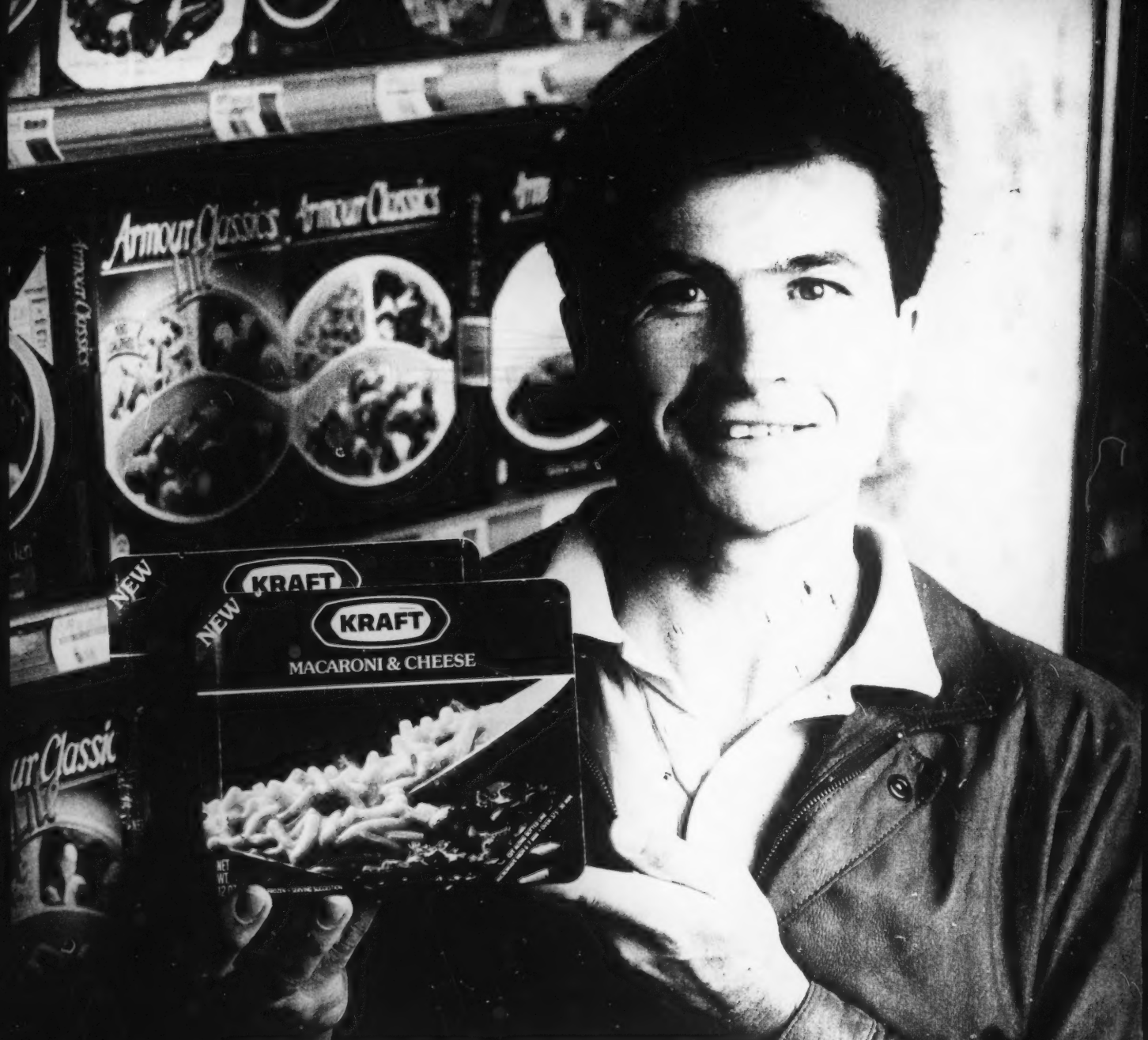


Satisfaction with anti-tampering measures is nearly eight points lower this year than last, but still quite high.

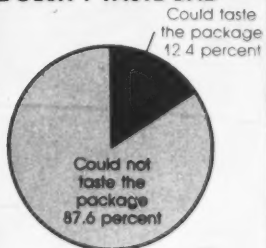
...JUST DON'T EXPECT THE CONSUMER TO PAY



How much more will the consumer pay for a product with tamper-evident packaging versus the same product without it? Only the "nothing" lines are rising.

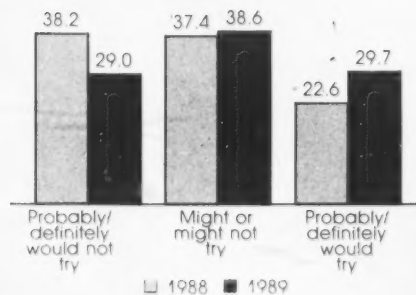


COOK-IN PACKAGING DOESN'T TASTE BAD



Nearly 90 percent of respondents say they have not found they could "taste the package" in microwavable foods left in the package for cooking.

CONSUMERS SEEM WILLING TO TRY IRRADIATED FOOD



Irradiation is almost beginning to look like an idea whose time has come. Increasingly, consumers are willing to try foods preserved this way.

As frozen-foods marketers say, refrigerated and shelf-stable meals pose little threat to frozen so far

Consumers continued to look for signs of product tampering. Over the past three years, the percent of survey respondents saying they had checked foods or pharmaceuticals packages for signs of tampering rose by almost seven points. In the same period, product rejections because of the appearance of tampering rose by almost 20 points.

Those figures can be related to consumer dissatisfaction with manufacturers' anti-tampering measures. The percentage of respondents who said they were satisfied fell from 70.8 to 63.1 points 1988-1989.

This year as before, we asked consumers which types of foods should be available in tamper-evident packages. Percentages fell in all categories 1987-1988 but rose again in all but one 1988-1989. The down-and-up course of the numbers is not as significant as the fact that consumers generally have remained concerned about tamper-evident packaging.

The percentages of consumers who said candy needed tamper-evident packaging have dropped two years in a row. Perhaps this too is related to the aging of the population. More than 73 percent of consumers from households with children said they felt candy should come in tamper-evident packaging. In childless households, the percent was 65.4.

Consumers seem increasingly unwilling to put their money where their mouth is regarding tamper-evident packaging. The only line on the "Paying Extra" chart for foods that has risen steadily and significantly is that representing consumers who would rather pay nothing extra at all.

Good-looking labels

Consumers' reliance on labeling proved to be high, and they were generally satisfied with what they saw. We asked consumers to rank

their satisfaction with six label characteristics in 1988 and 1989. In both years, consumers gave the highest positive rating to "listing of ingredients," the lowest to "information about the purpose of additives." Consumers said they were less satisfied with the accuracy of label photography than with directions for product use.

The consumer's awareness of codes and expiration dates on packages this year is unchanged from 1987 and from 1988. In all three years nearly 90 percent of survey respondents said they were aware of these on-product indications of shelf life.

The Food and Drug Administration has published a reaffirmation of the safety of food irradiation and settled on labeling language for foods processed that way. Our survey shows that consumer willingness to try irradiated food has gained importance. Last year, "would not try" responses stood at nearly 40 percent; "would try" answers reached only 30 percent. In 1989, the percentage of consumers saying they probably or definitely would not try irradiated foods nearly equaled that saying they probably or definitely would.

PACKAGING will continue to update the Consumer Survey year after year to ensure that it remains relevant to current events in and around the field of packaging. ■

PLEASE RATE THIS ARTICLE

How would you rate this article? To reply, circle the appropriate number on the reader service card:

Outstanding	461
Above Average	462
Average	463
Below Average	464

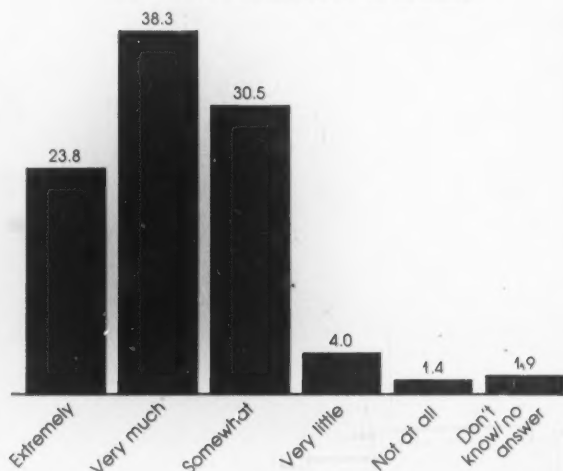
GREG ERICKSON

Senior Editor
"Once again this year the consumer provided the packaging field with more than a few surprises. But we don't design the Consumer Survey for maximum shock value. Instead, we try to make it as scientific and relevant as possible. To that end, we'd be happy to hear your comments about questions that should be added for 1990."

COMPLETE REPORT AVAILABLE

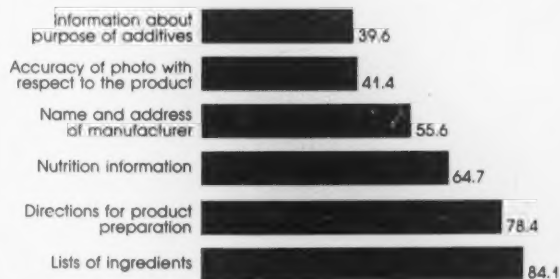
Information contained in this article was condensed from nearly 300 pages of data in PACKAGING's 1989 Consumer Survey. The complete study is available for \$500. For more information, contact Consumer Survey Editor, PACKAGING magazine, Cahners Publishing Co., 1350 E. Touhy Ave., Des Plaines, Ill. 60018, or circle No. 465 on the Reader Service Card.

THEY PAY ATTENTION TO LABELS...



Most consumers say they rely on food-package labels "very much."

...AND GENERALLY LIKE WHAT THEY SEE



What consumers see on labels generally pleases them as shown by these "excellent/good" responses. Yet consumers criticize labels for skimping on information about additives and displaying inaccurate photographs of products.

PACKAGING

THE CAHNERS MAGAZINE FOR DECISION-MAKERS/JULY 1989

PACKAGING'S 100 GIANTS

Dairy's Unique Square
Cups Reduce Costs

What Packages Will
Supermarkets Stock?

Latest Developments In
Pumps And Triggers



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A CAHNERS PUBLICATION

VOLUME 34 NUMBER 10

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RECYCLING NEWS

Handbook Offers Realistic Advice

C. of C. cuts through confusion

"There are several simple statements of fact concerning the processing of waste for energy and materials," says Dr. Harvey Alter in the succinct and eloquent little book he wrote for the U.S. Chamber of Commerce. "They are so obvious that once stated they may be likened to the laws of nature—with tongue in cheek."

In just 50 pages, Alter's book, *The Greatly Growing Garbage Problem*, reports facts and the myths of the waste crisis. It is intended as a guide to municipal solid-waste management for



New booklet from the U.S. Chamber of Commerce provides clear-cut advice to the packaging field regarding increasing concern about the environment.

communities and businesses. Together, the half-dozen summary laws listed in the book serve as a moderating influence. Here they are:

"Ye Shall Own the Waste." Communities wishing to contract for waste processing or entrepreneurs looking to process waste for a fee must have a contractually guaranteed source of raw material. Deviation from

this law presents financial risks.

"Ye Cannot Sell Garbage." Waste, says Alter, must be processed to produce products that meet their buyers' specifications.

"There Is No Gold in Garbage." The amount of the commodity recovered from waste multiplied by the price of that commodity equals the maximum gross revenue that could go to the processor. Those revenues

are unlikely to fully cover expenses. The difference must be made up by tipping fees.

"Ye Shall Have Different Approaches for Different Places." Communities differ, so waste-management strategies must differ also, Alter says.

"Ye Cannot Take Something Nobody Wants and Make Something Else That Nobody Wants." Some people think that environmental concerns justify the use of waste products in making practically anything, Alter says. But, he notes, "Garbage is garbage; separation and processing must convert it to useful products."

"Ye Shall Always Have a Residue." Not everything is recoverable, Alter concludes. "No waste management method matches the hog producers' claim: 'We use everything but the squeal.'"

The Greatly Growing Garbage Problem is available from the U.S. Chamber of Commerce, Publications Fulfillment, 1615 H St., N.W., Washington, D.C. 20062. Price: \$22 for members; \$33 for non-members.

No New Resin Seen In Trash

Recycling won't make all-purpose plastic

Will there be a time in the near future when various waste plastics will be intermingled and transformed into some sort of all-purpose resin? Not likely, says DuPont.

Gerald Ehrens, DuPont manager of business development, says the company's current research and development probably will not lead to a significantly new resin formulation made from waste.

Despite DuPont's use of terms like "compatibilizers" and "plastic alloys" in relation to its recycling efforts, Ehrens expresses doubt that such diverse plastics as polyethylene, polystyrene and polyethylene terephthalate will ever be compatibilized to the extent that a widely applicable alloy would become feasible.

DuPont has announced plans to join Waste Management Inc. in developing the largest U.S. plastics recycling/reprocessing operation. The plastics manufacturer and the waste hauler plan to spend \$5 million each.



Package Recyclability Affects Sales

'Often' replies exceed 'never' in '89 survey

The importance of package recyclability continues to rise as a product-purchase factor in the American consumer's mind.

Every year since 1986, PACKAGING magazine's survey has asked consumers how often the recyclability of packaging materials affected their purchasing decisions. Results have revealed a steady climb in the significance of this packaging characteristic.

As "never" responses have

fallen from 29.2 percent to just slightly more than half that, "often" responses have doubled. This year, "often" overtook "never" for the first time.

With help from a respected opinion-research firm, PACKAGING mailed 1,000 questionnaires to U.S. households. Nearly 70 percent of the recipients returned their questionnaires.

A full report on environment-related results of the 1989 survey will be published in PACKAGING's August issue, which will be devoted entirely to the role of packaging in the waste crisis.

Beverage Group Turns Up Steam

New office to help tell recycling story

The National Soft Drink Association has established a new Solid Waste Programs Division to assist member companies and associations in addressing questions about waste.

Headed by E. Gifford Stack, NSDA's director of recycling programs, the new division is expected to grow to five full-time professionals this summer. The staff will include three waste-management policy advisors who will work directly with member bottlers and state associations faced with specific solid-waste and recycling issues.

According to Dwight C. Reed, NSDA president, beverage containers currently contribute 49 percent of the scrap revenue derived from curbside recycling programs. "We plan to communicate this message to key audiences," he says.

The new division's resources will be channeled into communications, research and development and localized assistance, Reed adds.

Top 100 Giants Grow By \$4 Billion

The 100 largest consumers
of packaging materials
find strength in new
product development
and acquisitions

By Mark Spaulding
Associate Editor

Time after time, the lesson in today's volatile marketplace is clear. The way to grow sales, gain market share and dominate your industry is to either devastate your competition with rapid-fire new product development or simply buy them out in an acquisition.

These two themes stand out sharply in the corporate



LEADING FOOD PACKAGERS	
Rank	Company (Divisions)
1	General Foods Corp. (Kraft, Post, etc.)
2	Amstar Corp. (Amstar, etc.)
3	Amstar Corp. (Amstar, etc.)
4	Amstar Corp. (Amstar, etc.)
5	Amstar Corp. (Amstar, etc.)
6	Amstar Corp. (Amstar, etc.)
7	Amstar Corp. (Amstar, etc.)
8	Amstar Corp. (Amstar, etc.)
9	Amstar Corp. (Amstar, etc.)
10	Amstar Corp. (Amstar, etc.)

LEADING BEVERAGE PACKAGERS	
Rank	Company (Divisions)
1	Anheuser-Busch Companies, Inc. (Budweiser, Michelob, etc.)
2	Coca-Cola Enterprises, Inc. (Coca-Cola, Sprite, Minute Maid)
3	Coca-Cola Company (Coca-Cola USA, Coca-Cola Foods)
4	PepsiCo, Inc. (Pepsi-Cola Co., Seven-Up)
5	Philip Morris Companies, Inc. (Miltar, Life, Lowenbrau)

SELECTED 1988 CAPITAL EXPENDITURES FOR PACKAGING MACHINERY & EQUIPMENT	
Company	Amount
Anheuser-Busch Cos.	\$200,000,000
Coca-Cola Enterprises	\$76,000,000
Thomas J. Lipton Inc.	\$40,000,000
General Cinema Beverages	\$30,000,000
G. Heileman Brewing	\$25,000,000
Dean Food's Co.	\$20,000,000
General Motors Corp.	\$15,000,000

strategies of firms throughout our 1989 Giants. Successful new product introductions coupled with the burden of marketing a former competitor's products ultimately pushes packaging expenditures higher and higher.

This two-pronged approach is reflected in the final figures. Our exclusive list of the top 100 Giants consumed more than \$23.4 billion worth of packaging materials and

finished containers during 1988, an increase of more than \$4 billion over last year's top 100. The Giants now purchase about 36 percent of the total U.S. packaging industry's 1988 output, gobbling up an additional five percent more of the packaging produced in the U.S. than in 1987. Looking at it a bit closer, the Top 10 companies alone spent more than \$11.1 billion on everything from

bottles, cans and closures to labels, cases and palletizing stretch-film. The 100th-ranked company's packaging purchases grew by \$5 million.

The 1989 Giants welcome 10 new members this year. These packagers made the list through the "new product innovation and acquisition" strategy. Acquisitions also made several companies disappear from the Giants. Most notable is Eastman Kodak's

purchase of Sterling Drug, pushing Eastman up almost 40 places in the 1989 ranking.

How the survey was done

The results of our third annual Packaging Giants survey were compiled from the packaged-goods companies themselves. This was supplemented by sources such as U.S. Dept. of Commerce statistics, the *Fortune 500*, corporate annual reports, and

Food and beverages dominate the Top 10 Giants of the packaged-goods industry with names such as Anheuser-Busch, Philip Morris, RJR Nabisco and Coca-Cola Enterprises.



Top 100 Giants purchase 36% of the U.S. packaging-industry's total output

LEADING PHARMACEUTICAL PACKAGERS	
Rank	Company (Divisions)
1	Johnson & Johnson (Johnson & Johnson, Hospital Services, McNeil, Ortho)
2	Eastman Kodak Co. (Sterling Drug, Glenbrook Laboratories, Winthrop Pharmaceuticals)
3	Bristol-Myers Co. (Bristol-Myers, Pharmaceutical & Nutritional Group, Health Care Group)
4	American Home Products Corp. (Wyeth-Ayerst, Sherwood, Whitehall)

LEADING COSMETICS PACKAGERS	
Rank	Company (Divisions)
1	Avon Products, Inc. (U.S. Direct Selling, Retail)
2	Revlon Group (Revlon, Max Factor, Almay)
3	Faberge (Faberge, Organics)
4	Noxell Corp. (Cover Girl, Clarion, Noxema)
5	Alberto Culver Co. (Alberto VO5, TRESemme)

LEADING PACKAGERS BY MATERIAL TYPES*				
Rank	Paperboard	Plastic	Metal	Glass
1	Philip Morris	Procter & Gamble	Anheuser-Busch	Anheuser-Busch
2	RJR Nabisco	Philip Morris	Philip Morris	Jos. Seagram
3	Anheuser-Busch	PepsiCo	RJR Nabisco	Philip Morris
4	Procter & Gamble	Kraft	Coca-Cola Ent.	Coca-Cola Ent.
5	Coca-Cola Ent.	Coca-Cola Co.	Coca-Cola Co.	PepsiCo

*PACKAGING estimates

our own Cahners Economics division.

We surveyed hundreds of firms to determine the amount spent on packaging materials and containers used to package any and all products sold in the U.S., including the value of any self-manufactured containers. When necessary, estimates were made by multiplying domestic sales for each type of product by an accurate percentage typically spent to package such products.

As expected, the highly packaging-intensive beverage industry dominates the 10 largest consumers in our 1989 Giants. No. 1 packager Anheuser-Busch spends upwards of \$8.6 million on pack-

aging every business day. Its total for 1988 exceeds the combined packaging buying power of the bottom 45 companies in our ranking.

No. 4 Coca-Cola Enterprises, even with its ability to run lean and mean with massive economies of scale, spends about \$4.2 million each business day. The company's recent acquisition drive and growing popularity of products such as diet Coke will push the 28-state bottler's expenditures even higher in the future.

Capital expenditures

Thirteen Giants reported their packaging machinery capital expenditures to us for 1988. Although not a com-

plete total, these firms purchased more than \$218.7 million in capital equipment for packaging lines across the country.

PACKAGING estimates Anheuser-Busch's packaging-equipment purchases at about \$200 million. Construction of the firm's 12th brewery in Fort Collins, Colo., as well as modernizations at its St. Louis packaging plant and Newark, N.J., and Columbus, Ohio, breweries demanded significant investments last year. Tea and side-dish maker Thomas J. Lipton reported a \$40 million expenditure, while General Cinema Beverages purchased \$30 million in a move to consolidate its bottling opera-

tions at Twinsburg, Ohio.

The "new-product innovation and acquisition" strategy will continue to serve the Giants well. Look for higher packaging expenditures in the future concentrated into a tighter, select group of U.S. consumer packaged-goods companies.

PLEASE RATE THIS ARTICLE

How would you rate this article? To reply, circle the appropriate number on the reader service card:

Outstanding	448
Above Average	449
Average	450
Below Average	451



PACKAGING GIANTS

Rank	Company Profile	Packaging Expenditures (* PACKAGING est.)
1	Anheuser-Busch (St. Louis, MO) A-B made use of new container-production facilities to supply more than 3 billion cans and 3.5 billion aluminum lids for use by regionally-located brewing plants. Double-digit sales growth for Bud Light was recorded along with the debut of Michelob Dry.	\$2,253,757,000*
2	Phillip Morris (New York, NY) More than 100 new products introduced by General Foods USA. Oscar Mayer's Lunchables boosts share of processed-meat market to 35%. Miller Brewing buys Jacob Leinenkugel. Because P-M did not acquire Kraft until Dec. 7, the latter's packaging expenditures are shown separately.	\$1,981,450,000*
3	RJR Nabisco (Atlanta, GA) Packaging-intensive Planters Lifesavers improved distribution to C-stores and smaller retailers. Nabisco Brands' new bakery near Raleigh, N.C., gives greater flexibility in packaging new products. Del Monte's domination of the canned-food aisle continued with microwave Vegetable Classics.	\$1,232,000,000*
4	Coca-Cola Enterprises (Atlanta, GA) World's largest soft-drink bottler packages Coca-Cola products to 100 million people in 28 states, D.C. and Virgin Islands. Acquired bottlers in Memphis and Miami while divesting bottler Mid-America. Gained new territories in Maryland, Arkansas, Mississippi and Delaware.	\$1,084,832,000*
5	Pepsico (Purchase, NY) Soft-drink growth up 17% with Diet Pepsi achieving double-digit volume growth for the fifth straight year. Company-owned bottling grew with purchase of Grand Metropolitan's soft-drink operations and 11 smaller bottlers. Frito-Lay's pound shipments advanced 3%.	\$1,054,573,000*
6	Coca-Cola Co. (Atlanta, GA) Intense marketing fostered healthy growth for Coca-Cola USA's top brands. Diet Coke jumped 13%, followed by 7% gains for both Coca-Cola Classic and Sprite. In the OJ Wars, Minute Maid Premium Choice hit the shelves in several Eastern markets, packaged in high-tech, plastic bottles.	\$1,031,400,000*
7	Procter & Gamble (Cincinnati, OH) Significant volume increases in laundry products. Packaging improvements to Vidal Sassoon and Vicks health-care products registered as notable increases in volume and sales. New products from Duncan Hines and Pringle's added greater volume in packaged-foods category.	\$934,527,000*
8	Kraft (Glenview, IL) Packaging expenditures up about 11%. Kraft's major move into frozen foods with complete line of microwavable, cheese-dominant entrees means whole new category to package. Better packaging productivity boosted sales for Breyers, Light n' Lively, Sealtest and Breakstone.	\$587,000,000*
9	Joseph E. Seagram & Sons (New York, NY) Cold water seems to have been poured on the hot wine-cooler market. Growth is down for its Golden Spirits Coolers. The firm completed the sale of its medium-priced Taylor and Paul Masson brands in the U.S. Purchased Tropicana orange-juice products from Beatrice Co. for \$1.2 billion.	\$567,000,000*
10	Sara Lee (Chicago, IL) Queen of frozen baked-goods reaped double-digit sales jumps for Snacks line. Jimmy Dean and Mr. Turkey subsidiaries also experienced growth. More than 50% of sales from Hanes Hosiery division come from products less than 3 years old, such as Silk Reflections and Sheer Elegance.	\$471,120,000*

Rank	Company Profile	Packaging Expenditures (* PACKAGING est.)
11	Brown-Forman (Louisville, KY) A combination of glitz and rich tradition were necessary to sell spirits amid a current industry-wide decline in consumption of 2% last year. Its California Cooler business alone dropped 28%, and a package redesign is expected to help increase sales this year.	\$435,750,000*
12	Whitman (Chicago, IL) Pepsi-Cola General Bottlers increases sales by 48.8% with merger of RKO Bottlers and 2 other large franchises. Division now serves market of 23 million people and ships nearly 225 million cases/year. Pet Inc. acquired Orval Kent, leading supplier of fresh salads to foodservice.	\$403,588,000*
13	Stroh Brewing (Detroit, MI) With loss of market share for brewery's flagship brand, company has totally revamped Stroh's and Stroh's Light packaging graphics and advertising campaigns. So long, Alex, the beer-loving Golden Retriever. Old Milwaukee and other regional brands maintain popularity.	\$402,631,000*
14	Kimberly-Clark (Dallas, TX) High volume increases for Huggies diapers, Depend adult incontinence products and Kleenex facial tissues. Volume of Kotex and New Freedom declines slightly. Test-marketing for Once Overs pre-moistened, disposable wipes for bathroom continues in Springfield, Mo.	\$389,081,000*
15	Borden (New York, NY) Regional acquisitions extend Borden's dairy product reach to 38 states. Successful 1988 roll-outs include Creamette as first national pasta brand, Classico as leading premium-range pasta sauce, and Krunchers! as fastest-growing, premium-line of salty-snack products.	\$356,915,000*
16	Campbell Soup (Candem, NJ) With \$1.5 billion in retail soup-product sales, Campbell's outpaces all comers. Volume growth in Swanson and Le Menu convenience meals continues. Pepperidge Farm's unit volume improves 5%. Packaging-intensive Souper Combos microwave meals distribution will be expanded during 1989.	\$355,207,000*
17	Eastman Kodak (Rochester, NY) Last year's 54th-ranked packager leaps ahead with acquisition of Sterling Drug. Major consumer lines now include Lysol, Wet Ones, d-Con, Neo-Synephrine and Panadol. Sales of 35mm film set double-digit pace. New products such as Ektar 25 film prove to be major volume contributors.	\$352,560,000*
18	ConAgra (Omaha, NE) Consumer Frozen Food introduces 61 new products last year amid major plant consolidation. Armour Food volumes down moderately. Country Skillet introduced Catfish Cuisine, first fresh marinated fish available at retail. New products expected from new-acquisition Blue Star Foods.	\$340,481,000*
19	Avon Products (New York, NY) Avon Color, new line of 350 shades of lip, eye, face and nail colors, help increase cosmetic sales 11%. Skin-care sales jump 9%. Purchasing figures reported were \$19 million for folding cartons, about \$16 million for closures, and \$10 million alone for lipstick components.	\$322,000,000
20	Adolph Coors (Golden, CO) Overall volume rises 5.6% during year of virtually zero growth for domestic brewers. Innovations include Party Ball plastic beer sphere in a box. National rollout is planned. Also added longneck, non-returnable bottles for Coors, Coors Light and Extra Gold Draft.	\$312,150,000

PACKAGING GIANTS

Rank	Company Profile	Packaging Expenditures (* PACKAGING est.)
21	Scott Paper (Philadelphia, PA) Introduced a number of new products and line extensions requiring their share of packaging expenditures. Among these were Hypo-Allergenic Cottonelle bathroom tissue, Baby Fresh Special Formula wipes with all-natural lotion, and Softkins flushable personal cleansing cloths.	\$307,166,000*
22	G. Heileman Brewing (LaCrosse, WI) "God's Country" brewer of Old Style packages its beers equally in metal and glass; buys roughly \$120 million of each material. About \$60 million goes for paperboard carriers and corrugated cases. Capital expenditures for packaging machinery reported at \$25 million.	\$300,000,000
23	Nestle Holdings (Purchase, NY) Swiss foods conglomerate saw modest rise in overall packaging expenditures. Confectionery business remains strong, but new Stouffer's Dinner Supreme line meets fierce competition. Carnation debuts Friskies Kitten Formula cat food in baby-blue, gable-top milk carton.	\$288,500,000*
24	Pillsbury (Minneapolis, MN) Pillsbury Doughboy and Jolly Green Giant continue winning ways. Hottest new item in refrigerated case is microwaveable brownie sold in its own baking pan. Garden of Eatin' and Pasta Accents sold over 30 million packages, contributed to a 9% increase in frozen vegetable volume.	\$280,538,000*
25	General Mills (Minneapolis, MN) Market share growth for Big G cereals, Betty Crocker and Yoplait push GM's packaging expenditures up 7.5%. New Squeezit fruit drink, in fun, squeezable plastic bottles, is top seller in Western markets. Paperboard accounts for bulk of GM's purchases at 75%; plastic at 25%.	\$270,000,000
26	H.J. Heinz (Pittsburgh, PA) Co.'s 112-year-old ketchup line garnered 2% increase in cases sold. Notable addition was room service-size ketchup—2-1/4 ounce glass bottle designed for hoteliers. Many of Star Kist's national pet food brands—9 Lives, Amore, Meaty Bone—registered sales volume records.	\$251,425,000*
27	American Home Products (New York, NY) Dramatic sales increase results in 22.4% jump in packaging expenditures. Chef Boyardee Microwave Meals makes successful regional debut. Specific purchases include metal containers (\$127 million), paperboard (\$64 million), plastic (\$49 million) and glass (\$11 million).	\$251,000,000
28	Clorox (Oakland, CA) Clorox Super Detergent and combination of record volume shipments for Hidden Valley Ranch dressings, Domani entrees and Moore's appetizers bump up Clorox's packaging expenditures company-wide. Reports spending \$120 million alone for plastic bottles and caps.	\$250,000,000
29	General Cinema (Chesnut Hill, MA) Case volume increases 5%, largely attributable to success of diet soft-drinks. Capital expenditures for packaging equipment at \$30 million. Will likely drop out of Top 100 next year, having sold its bottling business to PepsiCo for \$1.75 billion in cash earlier this year.	\$250,000,000
30	Revlon Group (New York, NY) Drops a half dozen slots in Giants despite 3.3% increase in overall pkg. expenditures. Strong in plastics and paperboard for Max Factor and Almay cosmetics in blister packages. Upscale perfumes—Charles of the Ritz, Germaine Monteil—mainly in glass and paperboard.	\$242,213,000*

Rank	Company Profile	Packaging Expenditures (* PACKAGING est.)
31	John Labatt (Watchung, NJ) Completed acquisition spree. More than 33% of U.S. sales mainly in dairy products from subsidiaries such as Tuscan, Green Spring Dairy and EverFresh Juice. Pizza-maker Pasquale Food showed growth along with increasing imports of Canadian-brewed Labatt's beer.	\$224,814,000*
32	Quaker Oats (Chicago, IL) Product introductions support real volume-growth strategy. Quaker Oat Squares, Gatorade extensions, Aunt Jemima, Van Camp's and Rice-A-Roni are only a few. Gaines Cycle pet food implements major restage through packaging. Fisher-Price debuts more than 80 new toy products.	\$222,964,000*
33	Ocean Spray Cranberries (Lakeville/Middleboro, MA) Cranberry drinks, shelf-stable concentrates and aseptic TetraPaks continue upward sales, volume trend. Sauce product sales again ahead of 1987; expected to soar when plastic-packed Cran-Fruit cranberry sauces are fully on line. Foodservice businesses grow 21% in case sales.	\$196,410,000*
34	Beatrice (Chicago, IL) Drops in Top 100 rankings after sale of Tropicana to Jos. Seagram. Hunt-Wesson debuts 50 new products. Swift-Eckrich goes on microwave rampage, introducing several Brown 'n Serve sausage products; some use barrier-plastics with modified-atmosphere packaging.	\$194,000,000*
35	Johnson & Johnson (New Brunswick, NJ) McNeil Consumer Products launches new packaging for Tylenol Cold, Gelcaps and Imodium A-D. J&J Baby Products marketing Piz Buin Swiss sun-protection products. Hospital Services consolidates contracts with 1,700 U.S. hospitals to supply a multitude of products.	\$183,622,000*
36	Dean Foods (Franklin Park, IL) Fluid milk sales up 14%; cheese remains unchanged. Unit sales up 8.5% for Larsen's Freshlike, Veg-All and other branded vegetables. Capital expenditures for packaging machinery approach \$20 million. Material purchases: 35% paperboard, 35% plastic, 20% metal and 10% glass.	\$180,000,000
37	E.I. DuPont de Nemours (Wilmington, DE) Fiber-segment volumes (Stainmaster carpet, Coolmax and Thermax polyester) up 3%. New Tenn. plant on line for ProSelect olefin carpet fiber. Agricultural chemical volumes jump 11%. Consumer product volumes from Corian building products and digital compact disks were 7%.	\$178,669,000*
38	Lever Brothers (New York, NY) Lever Household continues to grow market share. Completes national launches for Morning Fresh Snuggle, Sunlight liquid and Surf detergent. Ships 500 million plastic bottles annually. First production facility in the South under construction at Cartersville, Ga.	\$174,217,000*
39	CPC International (Englewood Cliffs, NJ) Volume growth—21%—recorded as Consumer Foods dominate principal business. Knorr products show 17% volume gain. Mazola and Hellman's brands jump 11% after entering Texas, California markets. Thomas/Arnold's bakery and Mueller pasta volumes stay essentially the same.	\$166,843,000*
40	Dow Chemical (Midland, MI) Record gains in Home/Food Care unit as well as full year of producing newly acquired Personal Care products skyrocket pkg. expenditures by 45.4%. Reports nearly \$45 million spent on paperboard, \$43.2 million for plastic materials and \$29 million for metal containers.	\$160,000,000

PACKAGING GIANTS

Rank	Company Profile	Packaging Expenditures (* PACKAGING est.)
41	General Motors (Detroit, MI)	\$158,800,000
	Healthy automobile and parts sales nudge expenditures up 3.7%. Geo line of small vehicles launched by Chevrolet. Truck volume increases 12.9%. Packaging-equipment capital expenditures reach \$15 million. Vast majority of purchases in paperboard (75.6%) and plastic (16.3%).	
42	Thomas J. Lipton (Englewood Cliffs, NJ)	\$150,000,000
	Packaging expenditures up respectable 7.1%. Variety of new products contributed—Cool Side Salads and Potatoes and Sauce mixes. Capital expenditures for pkg. machinery hit \$40 million. Specific purchases featured \$50 million in paperboard and \$25 million in plastic materials.	
43	Geo. A. Hormel (Austin, MN)	\$149,740,000
	Packaging expenditures up 13.2% on overall sales decrease of 0.9%. Buys Chicken by George upscale line of marinated, fresh entrees. Top Shelf distribution expands 45% of U.S. Dinty Moore and Hormel chili bow in retortable plastic cups. Demand increases for Industrial Products.	
44	Hershey Foods (Hershey, PA)	\$145,000,000
	Packaging expenditures up nearly 5% with help from Golden Almond Nuggets and new Bar None confections. Purchased U.S. operations of Cadbury-Schwepes PLC. Reports spending \$60 million for paperboard, \$40 million for plastic materials and \$35 million for metals, including foils.	
45	Kellogg (Battle Creek, MI)	\$134,862,000*
	Working on modernization of Battle Creek facilities. State-of-the-art cereal packaging line opens. New Memphis plant to serve growing South markets. Volume growth for Pop-Tarts leads to expansion at Muncy, Pa., facility. Huge wave of new oat bran-based products.	
46	Ralston-Purina (St. Louis, MO)	\$134,578,000*
	Pet-food introductions vary from Ribz and Beggin' Strips dog snacks to Kit 'N Kaboodle cat food and Whisker Lickin's cat treats. Volume off in Chex line due mainly to extraordinary influx of competitive products. Private label cookies and crackers volume up slightly.	
47	Castle & Cooke (Los Angeles, CA)	\$132,000,000*
	Dole Food adds both products and markets to extensive operations. Pre-cut, packaged fresh vegetables grow in demand by retail and foodservice. Canned pineapple sauce and tropical fruit salads introduced. New kinds of dried fruits and nuts go into national distribution.	
48	Dial Corp. (Phoenix, AZ)	\$130,000,000
	Purchase of 20 Mule Team products nudges expenditures up 6.8%. Lunch Bucket entrees move into 77% of U.S. Liquid Dial expands nationally. Purchases: \$52 million (paperboard), \$32.5 million (plastic) and \$26 million (glass). Also \$5 million in packaging equipment.	
49	M&M/Mars (Hackettstown, NJ)	\$123,931,000*
	Secretive candy-giant's product line runs gamut from Snickers and Dove ice cream novelties to Kudos granola snacks and Kal Kan dog food. Recent packaging innovations include Sheba cat and Pedigree dog foods in single-serving metal trays with easy-open foil lids.	
50	3M Co. (St. Paul, MN)	\$123,150,000*
	Products less than 5 years old are main engine of growth, representing \$3 billion in sales. Double-digit volume gains for Commercial and Consumer Sector—Scotch, Carbonless and Post-it—reported. Co. enters beauty aids market with debut of Buf-Puf Daily Cleanser.	

Rank	Company Profile	Packaging Expenditures (* PACKAGING est.)
51	Ford Motor Co. (Greenfield, MI)	\$120,197,000*
	Expenditure rise of 11.5% reflects strong year for autos and parts. Truck sales reach all-time high. Electrical and Electronics divisions split to better concentrate on separate product lines. Bulk of pkg. materials fall into paperboard and plastic categories.	
52	Bristol-Myers (New York, NY)	\$118,478,000*
	Strong sales for Nuprin and successfully launched Tri-Buffered Bufferin push packaging expenditures upward by about 6%. Hair-care products such as Miss Clairol, Ultrass, Nice 'n Easy and Loving Care all show good volume and sales growth. Repositions Keri skin-care line.	
53	American Brands (Old Greenwich, CT)	\$103,076,000*
	Divestiture of Sunshine Biscuits essentially offset by acquisition of E-II Holdings. Business now concentrated on tobacco products, distilled spirits and hardware/household products. Foot-Joy golf shoes and Titleist round out need for packaging materials and containers.	
54	Keebler (Elmhurst, IL)	\$102,500,000
	Major move into salty snacks with SunCheros tortilla chips and O'Boises and Ripplin's potato-based snacks greatly increases flexible packaging needs. Hot seller: E.L. Fudge cookies. Plastics account for \$50.8 million in purchases, followed closely by paperboard with \$46.2 million.	
55	IDP (Dakota City, NE)	\$101,000,000
	Fresh-meat processing giant recently buys Perry, Ia., plant. Sixty-five percent of packaging expenditures reportedly in paperboard, with remaining dollars almost exclusively in plastic. Expects total expenditures to increase an additional 20% in 1989.	
56	Colgate-Palmolive (New York, NY)	\$100,000,000
	Six consecutive years of volume growth attributable to well-known brand names: Colgate, Palmolive, Ajax and Irish Spring. Tartar control products, Colgate Junior toothpaste contribute to 12% oral-care growth. Personal Care division launched more than 70 new products in 1988.	
57	International Business Machines (Armonk, NY)	\$99,028,000*
	Tiny drop in domestic sales reflected in pkg. expenditures basically unchanged from 1987. Application Business Systems turns out six new AS/400 models. Last October, IBM shipped its 3,000,000th Personal System/2 desktop unit only 18 months after the line's introduction.	
58	Exxon (New York, NY)	\$97,830,000*
	World's largest oil company's major emphasis is on chemical packaging. Polymers Group focuses on products for textiles and pkg. industry itself, turning out olefin-based polymers, adhesives, specialty polyolefins for multilayer films and impact-resistant polypropylene.	
59	PPG Industries (Pittsburgh, PA)	\$91,000,000
	Three principal businesses—glass, coatings and resins, and chemicals—all contributed to 7% growth in packaging expenditures. Pittsburgh Paints distribution expands through independent retailers. Introduces top-of-the-line Manor Hall latex exterior house paint.	
60	General Electric (Fairfield, CT)	\$90,000,000
	Drops in Top 100 after divestiture of GE/RCA TV business to Thomson S.A. of France. Acquires Roper electric and gas range business. Major-appliance concentration reflected in purchases: \$81 million (paperboard), \$7.2 million (plastic) and \$1.8 million (metal).	

PACKAGING GIANTS

Rank	Company Profile	Packaging Expenditures (* PACKAGING est.)	Rank	Company Profile	Packaging Expenditures (* PACKAGING est.)
61	Pfizer (New York, NY) Acquired Oral Research Labs, maker of Plax pre-brushing oral rinse. Terre Haute, Ind., plant expansion necessary to supply demand for polydextrose for use in "light" food formulations. Popular consumer brands include Visine, Ben-Gay, Barbasol, Unisom and Desitin.	\$87,360,000*	71	Chrysler (Highland Park, MI) Consolidation of American Motors acquisition complete, hiking packaging needs for Jeep Wranglers, Cherokees, and Eagle Premier product lines. Strong sales of minivans and mid-size Dodge trucks also help boost Mopar parts and work-in-process packaging requirements.	\$59,756,000*
62	Mobil Oil (New York, NY) Industrial-packaging need for resin and stretch-wrap. Plastic bottles dominate for motor-oil and lubricants. Capital expenditures for packaging machinery top \$9 million. Specific purchases include paperboard (\$42 million), plastic (\$36 million) and metal containers (\$8 million).	\$86,000,000	72	Gerber Products (Fremont, MI) Baby food volume gains 10% on success of First Foods; achieves 90% penetration of U.S. supermarkets during first full year of national distribution. Industry firsts: baby juice in 2 sizes of high-barrier, plastic bottles. Extends Gerber identity to packaging for NUK products.	\$59,416,000*
63	Texaco (White Plains, NY) Very slight decline in domestic sales drops company a few notches in ranking. Lubricant sales arm of Texaco USA packaging Havoline Motor Oil to great success, moving the product to No. 3 in sales. Emphasis growing on specialty chemicals: amines, detergents and fuel additives.	\$82,360,000*	73	Faberge (New York, NY) Packaging expenditures increase 13.1% in line with rapid sales growth. Drops slightly in rankings among major cosmetics packagers. Company placing greater emphasis on personal-care product lines such as Organics shampoos, expanding shelf presence via packaging.	\$57,947,000*
64	Tyson Foods (Springdale, AR) Co. increasing emphasis on "value-enhanced" poultry products requiring more complex and costly packaging. Purchases primarily in paperboard, secondarily in plastic. New consumer products include Flyers spicy chicken wings, Microwave patties/nuggets and Original fresh fillets.	\$81,200,000	74	Baxter Healthcare (Deerfield, IL) Rising sales yields corresponding 9.6% increase in pkg. expenditures, despite reduced costs of many items through consolidated purchasing. Breakdown shows 50% paperboard, 25% plastic, 15% metal and 10% glass. Brands include Baxter, Pharmaseal, Scientific Products and Dade.	\$57,000,000
65	United Brands (Cincinnati, OH) Chiquita is one of the most recognized names in the world. Application of the brand to new lines of fresh and frozen products push pkg. expenditures up 8%. John Morrell division's strength lies in regional brands and growing national recognition for Morrell and Rath Black Hawk.	\$76,555,000*	75	Morton Thiolok (Chicago, IL) Salt Group sales climb 4%, backed by ice control, water conditioning and table salt brands. Morton Pellets with System Saver gain 8%. Convenient 25-pound blocks for water conditioning enter Midwest markets. Specialty chemical sales up 17% with emphasis on automotive market.	\$56,728,000*
66	Tenneco (Houston, TX) Packaging Corp. of America reports 5th consecutive record year, purchasing molded fibre company to supply West Coast. Monroe Auto Equipment sales up 15%, and Walker Muffler achieves 9% sales jump. Tenneco Automotive Retail experiences only slight growth in domestic market.	\$76,452,000*	76	Merck & Co. (Rahway, NJ) Human health products make major contribution to 1988 gains. Products include Vasotec for high blood pressure; Mevacor cholesterol-lowering agent; Primaxin antibiotic; and Pepcid, for ulcers. Animal health products, mainly for parasite control, used in a variety of livestock.	\$56,042,000*
67	Holly Farms (Memphis, TN) No. 3 chicken processor sells leading brand of fresh chicken through supermarkets. Introductions include pre-cooked and packaged Oven Roasted Chicken and fresh Marinated Breast Fillets. Dixie Portland ranks as 7th largest flour miller serving Southeast and Midwest.	\$71,245,000*	77	Amoco (Chicago, IL) Polyester raw-material volume grows 8%. Genesis residential carpet fiber successfully launched in Southeastern markets. Purchased Bedford plastics, maker of dual-ovenable CPET food trays. Spent \$1 million alone for plastic caps for its motor-oil bottles.	\$52,800,000
68	Land O'Lakes (Minneapolis, MN) Packaging expenditures remain unchanged for maker of America's No. 1 selling butter. New tamper-evident spreads packaging debuts. Revises package graphics for Lake to Lake. Paperboard purchases reach \$25 million, with packaging-equipment capital expenditures at \$5 million.	\$70,000,000	78	Shell Oil (Houston, TX) Introduces Super 2000 10W-30 motor oil for passenger cars, along with Truck Guard motor oil specially formulated for light trucks, vans and RVs. Record levels for detergent, resin and Kraton thermoplastic rubber businesses. Agricultural chemicals and polymers up slightly.	\$50,547,000*
69	Monsanto (St. Louis, MO) Moderate increase of 6.7% in pkg. expenditures. Volumes of agricultural products based on glyphosate herbicide jump 29%. Sales of diet soft-drinks containing 100% NutraSweet brand sweetener continue to climb. Simplex all-natural fat substitute is under review by FDA.	\$63,520,000*	79	Whirlpool (Benton Harbor, MI) Whirlpool Group expands distribution of DesignerStyle refrigerators. Kenmore Appliance Group grows with production of upright vacuums. Kitchenaid adds new product lines, expands manufacturing base and meets surging demand for glass cooktops and built-in refrigerators.	\$50,000,000*
70	Miles Laboratories (Elkhart, IN) Major consumer health-care brands—Alka-Seltzer, Bactine, One-A-Day vitamins—remain strong. S.O.S., Glassworks and Cutter insect repellent dominate Consumer Household Division. Consolidated acquisition of Columbus Dental under Miles Pharmaceuticals.	\$60,000,000	80	Premark International (Deerfield, IL) Slower introductory pace for new U.S. Tupperware products. Sales are up slightly for Hobart and Vulcan foodservice equipment. West Bend housewares increases its sales and retail-outlet penetration by enhancing core product line with new sizes and color line extensions.	\$46,228,000*

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Rank	Company Profile	Packaging Expenditures (* PACKAGING est.)
81	Smithfield Foods (Smithfield, VA) Higher demand for Hamilton's Easy-Karv lower-salt hams and semi-boneless hams drive up unit volume. Esskay and Patrick Cudahy also show gains. Spent \$18 million on paperboard and \$8 million on plastic films. Packaging-machinery capital expenditures about \$2.75 million.	\$45,000,000
82	Schering-Plough (Madison, NJ) Allergy, cold-products grow 18% on gains by O-T-C Drixoral and Vancenase prescription drugs. Unveils new colors of DuraSoft contact lenses. New Maybelline cosmetics push sales up 10%. Coppertone sunscreens gain market share on consumer concerns over the dangers of skin cancer.	\$44,964,000*
83	Alberto Culver (Melrose Park, IL) Toiletries Div. sales growth led by VO5 shampoo and conditioner. Introduces Bold Hold styling line targeted at teenagers. Significant volume gains by TRESemme professional hair-care products. Successful nationwide launch of Molly McButter and Mrs. Dash extensions.	\$43,694,000*
84	SmithKline Beckman (Philadelphia, PA) Consumer products show vitality as promotion of Contac for allergies and Ecotrin aspirin for prevention of second heart attack help sales jump 20%. Animal health products rise 8%. Unified SmithKline & French records 7% sales decline due to fall-off of Tagamet and Dyazide in U.S.	\$42,951,000*
85	Noxell (Hunt Valley, MD) Cover Girl retains No. 1 position in mass-market cosmetic sales and unit volume. Clarion gains market share in all categories; lipstick business doubles in dollars and units. Diffrinse cold cream debuts in third quarter. Lestoil cleaner also registers revenue and unit volume increases.	\$42,770,000*
86	Abbott Laboratories (Abbott Park, IL) Packaging expenditures rise 11%. Pediatric pharmaceuticals led by Pedialyte oral solution. Murine Lens Care completes first full year on the market. Consumer standouts: Selsun Blue, Clear Eyes eye drops, Tronolane and Similac Special Care formula for low birth-weight babies.	\$41,457,000*
87	Olin Corp. (Stamford, CT) Maker of HTH, Pace and Sun brands of swimming-pool chemicals increases pkg. expenditures by 5.2%. Breakdown: 37% plastic, 31% paperboard, 25% metal and 7% glass. Brands include Olin Hunt specialty products, Waycoat resists, MicroStrip photographs and High Purity acids.	\$40,500,000
88	J.M. Smucker Co. (Orrville, OH) Foodservice business—under Smucker's, Dickinson's and Knudsen Family brands—boosted by unit growth. New products: Simply Fruit line of spreads, Goober Snack Pack and new flavors of 100% blended juice products. Expands distribution of Special Recipe ice cream toppings.	\$38,338,000*
89	Welch Foods (Concord, MA) Innovator of 1980's barrier, squeeze bottles for jams and jellies brings back 1950's cartoon-decorated tumbler-jars now updated with dinosaur designs. Products: Welch's Orchard 100% blended fruit juices, along with established lines of Original Concord Grape and White Grape juices.	\$37,552,000*
90	Goodyear Tire & Rubber (Akron, OH) Besides manufacturing tires, Goodyear also makes broad spectrum of rubber products for auto/industrial use, chemical and plastic products for the transportation industry. Purchase breakdown shows 35% paperboard, 35% plastic, 23% metal containers and 7% glass.	\$37,442,000

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91	Masco (Taylor, MI) Markets 1,000 different faucet models under Delta, Peerless, Artistic Brass brands. Sells about \$400 in merchandise for every newly constructed home in the country. Second-largest furniture maker with 5% share. Brands: Henredon, Drexel Heritage, Link-Taylor, Dixie.	\$36,000,000
92	Interstate Brands (Kansas City, MO) Cake Division unit volume expands 5.9%. Dolly Madison aggressively introduces new products, including a dozen new snack cake, pie and Danish items. Bread Division unit volume jumps 7.2%. Major bread brands include Butternut, Eddy's, Holsum, Sweetheart and Purity.	\$35,910,000*
93	Wilson Foods (Oklahoma City, OK) Packaging expenditures climb roughly 4.4%. Capital equipment purchases for packaging reported at \$1.85 million. Company's fresh, frozen and processed meat products sold primarily to supermarkets, also supplies McDonald's, Hardee's, Pizza Hut and 7-Eleven stores.	\$34,983,828
94	Corning Glass Works (Corning, NY) Acquires Revere Ware cookware to help build commanding department-store presence, along with established Visions and Crown Corning lines. Packaging expenditures rise 4%. Specific packaging-material breakdown includes \$26.5 million in paperboard and \$6 million in plastic.	\$33,548,000
95	McCormick & Co. (Hunt Valley, MD) New products introduced are Pasta Prima seasoning mixes, Chicken Sauce Blends and Parsley Patch no-salt seasonings. Consumer Products unit volume up 3.8%. Supplies ingredients to 80% of Top 100 U.S. food processors. Divested Tio Sancho Mexican food business.	\$32,516,000*
96	Rohm & Haas (Philadelphia, PA) Expenditures rocket 18.1% on 17% increase in unit volume for polymers, resins and monomers. Plastics-additives up at slower 3.2% pace. Industrial chemicals volume climbs 9%. Breakdown reported as paperboard (\$14.6 million), plastic (\$11.4 million) and metal (\$6.5 million).	\$32,500,000
97	Upjohn (Kalamazoo, MI) Domestic sales leaders for 4th consecutive year were Xanax anxiolytic agent, Halcion hypnotic and Micronase oral anti-diabetes agent. Sales of Motrin declines as generic substitution erodes market share. Rogaine treatment for male pattern baldness approved for U.S. marketing.	\$32,266,000*
98	Gillette (Boston, MA) Relaunches Silkience shampoos and conditioners. Restages 1960s hair-care success Dippity-do gel. Toiletries and cosmetics sales remain unchanged, while shave-cream products decline. Also markets line of Braun shavers and home appliances, and Oral-B toothbrushes and toothpastes.	\$32,186,400*
99	Squibb (Princeton, NJ) Five prescription pharmaceuticals alone each achieve volumes of \$100 million: Azactam, Capoten, Capozide, Corgard and Isovue. Medical-product sales climb 11%. Squibb Care, a new low-cost line of consumer health-care products, is successfully test-marketed.	\$31,632,000*
100	Emerson Electric (St. Louis, MO) Packaging expenditures remain unchanged for 1988. Company finds success with new consumer products such as Skill Super Twist line of rechargeable, cordless screwdrivers. Computer Support Group markets range of power and environmental controls for mainframe computer systems.	\$31,000,000

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PACKAGING

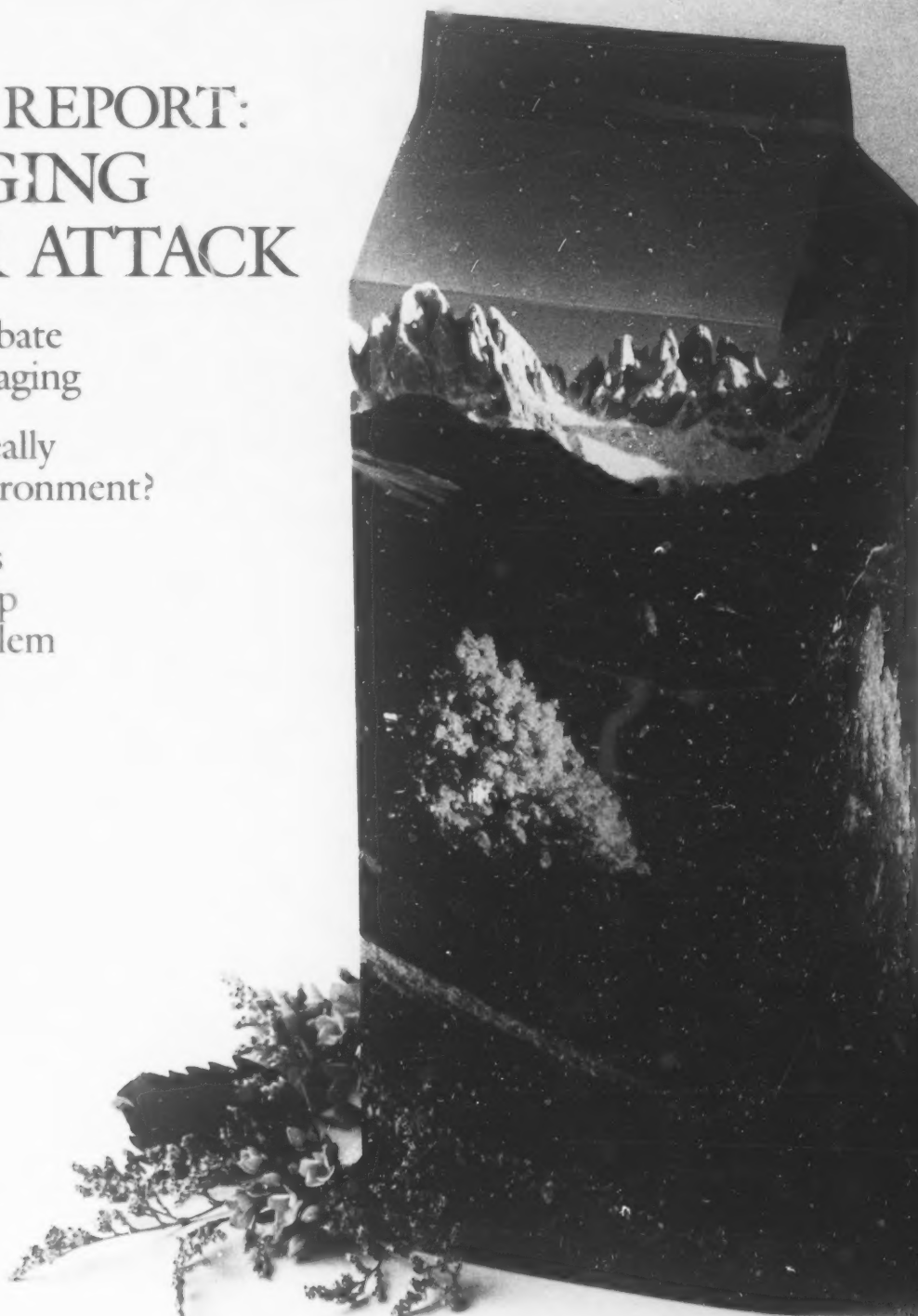
THE CAHNSERS MAGAZINE FOR DECISION-MAKERS/AUGUST 1989

SPECIAL REPORT: PACKAGING UNDER ATTACK

Solid Waste Debate
Threatens Packaging

Is Packaging Really
"Bad" For Environment?

What Packagers
Can Do To Help
Solve The Problem



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NEWS BRIEFS . . .

Canada Vibac Tape Corp. will build a new \$30 million facility to manufacture biaxially oriented polypropylene film for adhesive tapes. The new company, Vifan Canada Inc., will be on-stream in 1990 . . . **Milliken Chemical's** Millad 3905 polyolefin clarifying additive has been approved for use in food-contact applications by the Health Protection Branch of the Canadian Bureau of Chemical Safety. Primarily used to enhance the clarity of polypropylene and low-density polyethylene, Millad 3905 has been cleared by the U.S. Food and Drug Administration and most European and Far Eastern countries since 1980 . . . **Hargro Flexible Packaging** has officially acquired the **Lamcote Chicago** and **Lamcote Cedar Grove** operations from **Arvey Corp.** . . . **Royal Packaging Industries Van Leer B.V.** has acquired **American Flange & Manufacturing Co.** . . . **Domino Amjet, Inc.** has announced the appointment of **Canadian Inkjet Systems Ltd.** as sole Canadian distributor for its line of coding equipment and supplies . . . **Alusuisse** has acquired two French packaging firms: **Charmettes S.A.** and **Cerilve S.A.** . . . **Chesapeake Packaging Co.** has purchased **Displayco Group** from **Schiffenhaus Industries** . . . **Westwood Pharmaceuticals, a Bristol-Myers** company, has chosen pressure-

sensitive label supplier **Gintzler Graphics** as its Packaging Vendor of the Year . . . **GE Plastics** has moved its packaging operations from Norcross, Ga. to its company headquarters in Pittsfield, Mass. The move consolidates the firm's packaging development efforts with the resource of its **Polymer Processing Development Center** . . . **Reynolds Metals Company Can Division** has received **Miller Brewing Co.'s** Supplier of the Year award . . . **Western Summit Mfg. Corp.** has acquired **Kleerpak Mfg. Co.** Operations will continue under the name of **Western Summit Flexible Packaging Co.** . . . A food safety and nutrition panel at the **Institute of Food Technologists** has ranked aseptic packages and the process behind them as the "most significant food science innovation" of the last 50 years. Developed in connection with the society's 50th anniversary celebration in June, the panel also ranked safe canning of vegetables and the development of the microwave oven as second and third, respectively.

CORRECTIONS

The middle chart on page 48 of the June 1989 issue of **PACKAGING** contains a confusing bar. The numbers shown for aluminum are correct; the bar adjacent to 9.6 is incorrectly drawn.

CALENDAR/MAJOR SHOWS

Sept. 11-14 **CMM7: The Converting Machinery/Materials Conference & Exposition**, McCormick Place, Chicago, (212) 391-9111. Circle No. **325**

Sept. 12-14 **NYPACK '89**, Javits Convention Center, New York, (212) 557-6950. Circle No. **321**

Oct. 2-4 **Pac-Ex '89**, Exhibition Place, Toronto, Canada, (416) 485-7812. Circle No. **320**

Oct. 11-13 **WestPack '89**, Anaheim Convention Center, Anaheim, Calif., (203) 964-0000. Circle No. **323**

Oct. 24-26 **InterBev '89**, Las Vegas Convention Center, Las Vegas, (202) 463-6794. Circle No. **324**

Nov. 7-11 **Packintec '89**, Milan Fairgrounds, Milan, Italy, (800) 524-2193, (201) 534-9044. Circle No. **326**

A complete list of all meetings, shows, conferences, short courses, etc., is available free from **PACKAGING**, 1350 E. Touhy Ave., Des Plaines, Ill. 60018-3358, Attn: Lisa McTigue Pierce, or by circling No. **327**. No phone calls, please.

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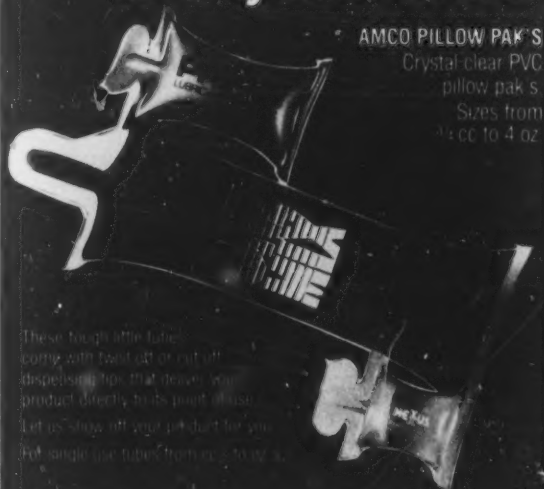
We also list what types of machines each company produces and provide a cross-reference to the companies by the equipment types produced and common trade names.

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PACKAGING SPECIAL REPORT

RUSHING TO JUDGMENT

Hundreds of government proposals seek to ban or restrict packaging

New!

PICTSWEET.

Exp

OR THE
WAVE



lotion

"Taxes," says the associate director of corporate packaging development. His audience seems to respond with a collective *Ouch*.

Procter & Gamble's Tom Rattray is addressing a convocation of packaging professionals. It's clear that he's not as much opposed to taxes on packaging in general as he is to taxes that are ineffective.

"We are very concerned," he says, "that across-the-board [packaging] taxes will simply become invisible revenue sources that leave consumers no action options, do not lead them to change their purchase or disposal habits, and therefore do little to truly reduce the nation's solid waste."

In comparison with other restrictions on packaging

that recently have been proposed at all levels of government, taxes may not be worst. Even so, they're likely to be a source of headaches for packagers, lawmakers and consumers alike.

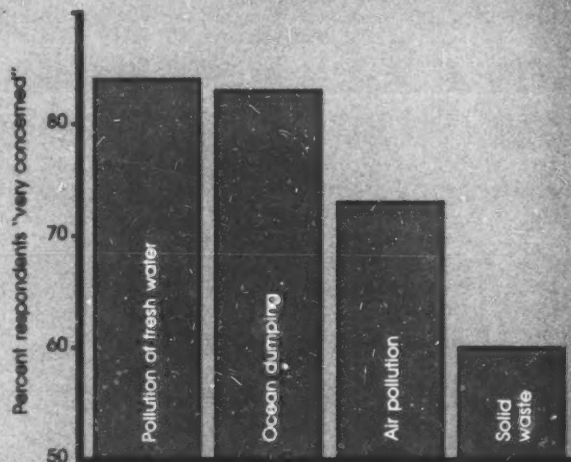
To see how, pretend that starting tomorrow each component of a package sold in your municipality will carry a one-cent tax. The price of a 27-inch color tv will rise by a nickel if its packaging comprises five pieces. The price of a pack of chewing gum will jump by 11 cents.

Such a tax has been proposed. So have these rules and regulations, requirements and restrictions:

- Imposition of disposal fees on containers not being recycled at specific rates
- Bans and surcharges on

When the gavel comes down in municipalities all around the country, a bewildering array of anti-packaging laws result. Public- and private-sector observers agree that such laws will prove as unenforceable as they are unfair.

WHAT'S THE BIGGEST ENVIRONMENTAL CONCERN?



Source: Gallup Poll, 1988

Despite all the media and legislative attention given the solid-waste issue, respondents to a recent Gallup Poll ranked it in last place among environmental problems.

Who would guess that Americans are more concerned about the environmental effects of ocean dumping than solid-waste disposal?

In a 1988 Gallup Poll survey of more than 1,000 adults nationwide, 83 percent of the respondents said they were very concerned

about ocean dumping. Pollution of fresh water was a major concern for 84 percent. Air pollution was called a big environmental problem by 73 percent.

Only 60 percent of the respondents said they were very concerned about solid waste.



SALT ADDED

Hunt's
Natural
Sweetened
Potatoes

It's beginning to appear as though we're exchanging trash for red tape

- nondegradable containers
- Prohibitions on retail sale of products packaged in multi-material containers
- Bans on retail sale of foods or beverages in nonrecyclable containers
- Mandatory national container-deposit fees.

The enforceability—even the constitutionality—of such proposals is already being called into question. At least one law—the restriction of point-of-sale packaging in Suffolk County, N.Y.—is presently being held up so that a court-ordered environmental-impact study can be conducted. Some county and city decrees are likely to be put on hold indefinitely while their possible interference with interstate commerce is deliberated. It's beginning to sound as though we're exchanging trash—not to mention realistic solutions to the solid-waste problem—for red tape.

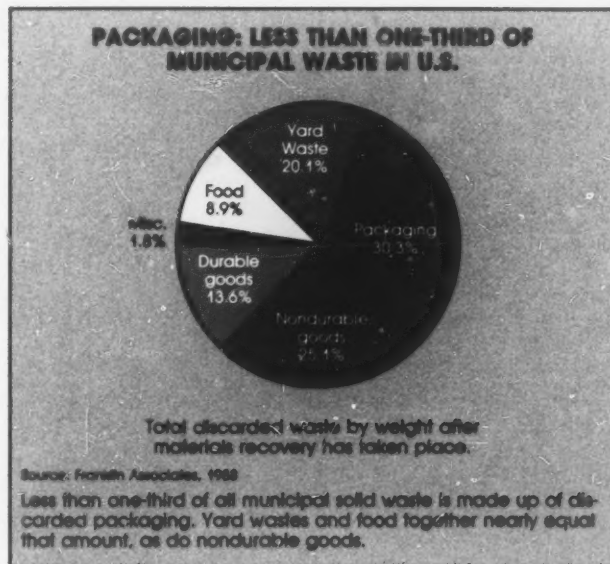
Another aspect of so many of the local proposals that frustrates packagers and some environmentalists alike is that they will do very little to actually reduce trash.

Cutting out cinnamon

Speaking of many of the proposals, Jerome H. Heckman, general counsel of the Society of the Plastics Industry, says, "If they think they're dealing with the real problem of solid waste, they are unfortunately mistaken. It's like asking you to cut out cinnamon when you need to lose 200 pounds."

Still, there's a reason for all the legislative activity. A recent Louis Harris & Associates analysis explains: "The issue of the environment has by now become an explosive and decisive cutting edge in mainstream politics."

Independent studies, including PACKAGING's annual



Consumer Surveys, show that American adults are concerned about the environment. However, respondents to these polls repeatedly say they believe solid waste to be a less-threatening problem than air pollution, pollution of fresh water supplies, disposal of hazardous waste or ocean dumping.

Solid waste is unquestionably part of the whole awful environmental problem, and packaging is part of solid waste. How much? Less than one-third. Food waste contributes more to the solid-waste stream than any single packaging material. And yard waste accounts for two-and-a-half times as much of the waste stream as even the most prevalent packaging material.

In that light, it's easy to understand why many in the packaging field see the rush of public-sector officials to pro-environment legislation as something of a frenzy. Pressured to do something—anything—a disturbingly large number of lawmakers are lending their name to

quick fixes.

That might backfire. Pollster Celinda C. Lake says, "Symbolic gestures and cosmetic solutions will increasingly be seen as inadequate by voters, who will demand real action . . ."

One voice of reason

There are some voices of reason in the public sector. One of them is Erica Guttman, environmental planner for the Rhode Island Solid Waste Management Corp., a quasi-public agency. "We recognize," she says, "that the threat of legislation is an important tool to galvanize industry to take positive actions they wouldn't otherwise take. But we also realize that in order for things to actually get done, we have to develop legislation that will give industry options to respond within the constraints of the waste problem, rather than dictating unrealistic requirements or imposing outright bans."

Gradually, lawmakers may come to see bans as impossibly burdensome. If taxes are

seen as the only alternative and are imposed, says Rat-tray, they "must be appropriately drafted and administered, and we very much want industry to play a major role in insuring that this happens."

Dismay and anger

Much industry input so far has seemed to come not before or during development of packaging legislation, but after. Too often the reaction has consisted of little more than dismay and anger.

In a paper presented to a division of the Society of the Plastics Industry in May, Heckman said, "Opposition alone, however staunch or justified, is not enough. We must go further. Unless we want to be forever reacting to, and victimized by, the bad ideas of others, we need to come up with some good ideas of our own."

One city that could have used some good ideas from packaging professionals is Minneapolis. There, one of the more severe laws in the nation was passed unanimously last spring by the city council. It states that to be environmentally acceptable, all food and beverage packaging must be degradable, returnable or recyclable.

The ordinance authorizes city health commissioners to exempt from restriction any packaging for which there is no commercially available alternative. In determining which materials those might be, the commissioners will have to wade through a quagmire of environmental, economic and merchandising factors.

It's going to be interesting.

A leading supplier of plastic packaging materials of the type banned in Minneapolis says he can't wait for the law to take effect, so certain is

he that it will prove impossible to control.

The legal tangle

Imagine the legal tangle that would result if every state in the nation—not to mention every county and city—had its own packaging law.

In the context of this dizzying proliferation of local proposals, it is becoming clear that the solid-waste issue might best be dealt with on the federal level.

One current proposal in Congress appears to recognize this. Rep. George J. Hochbrueckner (D-NY), whose district includes Suffolk County, N.Y., has penned a comprehensive bill, the Recyclable Materials Science and Technology Act (H.R. 500).

The bill would authorize federal research and development, through the Environmental Protection Agency and Departments of Commerce, Agriculture and Defense, to help create markets for recycled products and to foster or require use of recycling technologies.

Parts of the bill are already being considered by the various departments. Hearings are scheduled for this fall. According to Peter Coogan, an aide to Rep. Hochbrueckner, the bill had 130 co-sponsors in late June and was expected to draw in another 20 by August.

While many aspects of the bill appear reasonable and promising—it does take into account, for example, the large impact of yard waste on the waste stream—it is not without its troubling aspects. A demand that non-recyclable materials be biodegradable appears in several parts of the proposal. And after five years, the bill would "prohibit" materials that are

neither recyclable nor biodegradable.

Coogan tells PACKAGING, "Only in the litter aspect are we really looking at degradability." But that is not the way the bill reads.

While the Hochbrueckner proposal can be lauded for recognizing that the solid-waste problem may best be attacked most effectively at the federal level, some might argue it doesn't go far enough.

If serious about truly solving the solid-waste problem, the federal government will have to take a more active role in creating a realistic infrastructure to dispose of waste, relieving local bodies of the burden once they've exhausted all their options.

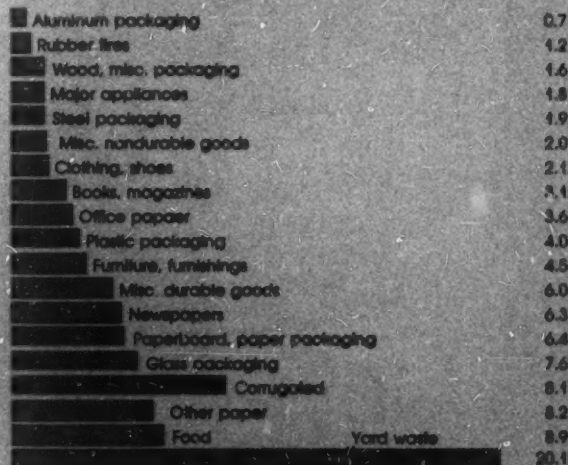
One observer has suggested that a federal agency, patterned after the federal interstate highway program or the Tennessee Valley Authority, could be established. This agency would have the power to site regional solid-waste recovery and handling centers, which could be licensed to private industry for operation.

Such regional centers would first recover whatever materials could be recycled using the best available technologies. The agency would then use waste-to-energy techniques or landfilling for everything else. It could also work with communities anywhere to help set up programs needed to facilitate bringing waste to the centers.

Interesting idea: realism

Perhaps the most interesting aspect of this proposal, besides its realism, is that the agency could be self-funding. The federal government could, if necessary, levy taxes on packaging materials and other components of solid

YARD WASTE, FOOD ADD MORE TO WASTE THAN ANY PACKAGING MATERIAL



Percent of total discarded waste by weight after materials recovery has taken place

Source: Franklin Associates, 1989

Grass clippings and leaves account for more than double the amount of even the most prevalent packaging material in the waste stream.

waste equally and fairly to generate initial revenues for building the centers. Further revenues could be obtained from sales of materials and energy.

A broad-based federal program such as this or some similar proposal may be the only way to effectively solve the solid-waste problem. It could also be a way to get packagers and their suppliers, state, local and federal officials and even environmentalists pulling in the same direction. But such solutions require courage, vision and a swearing off of quick-fix proposals and cinnamon diets.

In the meantime, local legislative bodies will continue to struggle with the problem, with results that will often be not only ineffective and unfair to packaging, but ultimately unmanageable.

—Greg Erickson and Robin Ashton

IRONIES: STICKS AND STONES #1

A new press release from an association of glass-packaging advocates crowed about results of a nationwide poll. "Fifty-two percent of the respondents said that plastic is definitely not recyclable."

The italics, we're proud to say, are not ours but theirs.

THE CONSUMER'S OPINION

PACKAGING's exclusive surveys reveal concern, misinformation and a willingness to help

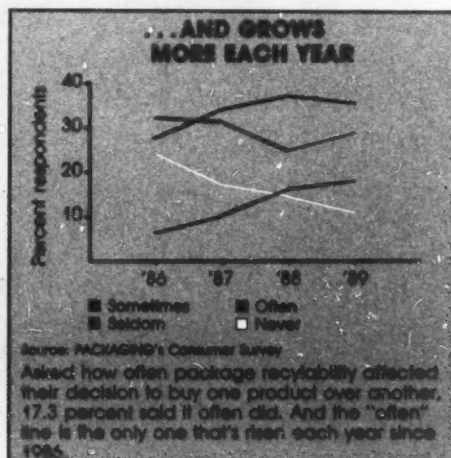
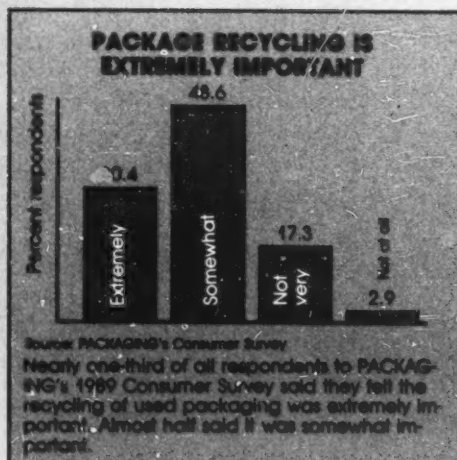
Acutely aware or utterly oblivious? Well-educated or woefully misinformed? Concerned or careless?

However it may be described, the mindset of the American consumer (and taxpayer) is unquestionably affecting the public and private sectors alike.

It was not consumers who originally conceived of and then went begging for disposable razors, diapers and soft-

drink bottles. But once those products came to market, the consumer eagerly bought them and used them; then, as was intended, willingly tossed them out.

Americans never marched in the streets chanting "We want convenience!" but their demand for it has nevertheless been a powerful social force. In the past, convenience included the freedom to dispose of whatever was un-



VOTE

☐

YES

☐

NO

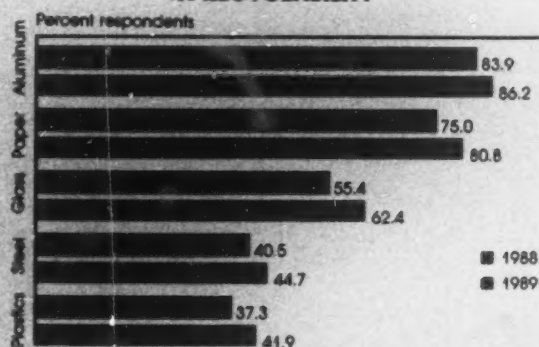


Respondents to Vlasic's annual consumer survey are increasingly considering the quality of packages when choosing products.

PACKAGING: SPECIAL REPORT

Consumers say they'll pay extra for packaging that's easy to recycle

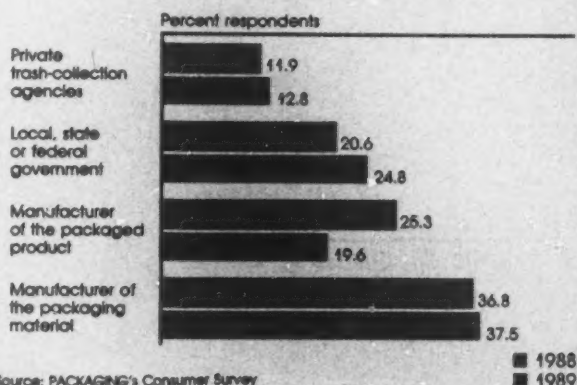
BIG DIFFERENCES SEEN IN RECYCLABILITY



Source: PACKAGING's Consumer Survey

When asked which of these packaging materials were very easy/easy to recycle, more than 80 percent of our respondents put aluminum on top in both 1988 and 1989.

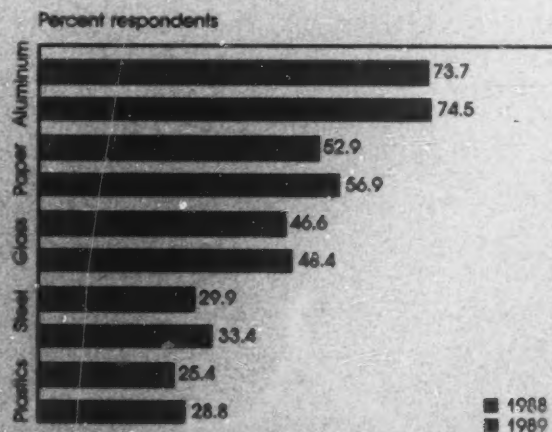
CONSUMERS SAY PACKAGING SUPPLIERS SHOULD PAY



Source: PACKAGING's Consumer Survey

Who should fund new recycling programs? Consumers said it's the manufacturer of the packaging material that should do the funding, not government or end users.

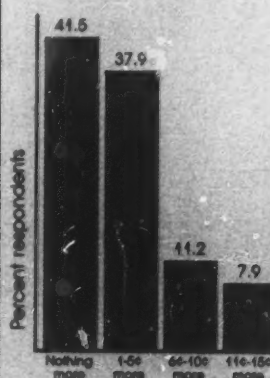
EVERYONE'S DOING A BETTER JOB



Source: PACKAGING's Consumer Survey

Which packaging-material manufacturers are doing a very good/job of recycling? Consumers ranked them in the same order year to year. But the percentage of consumers responding most favorably rose 1988-1989.

CONSUMERS WILL CONTRIBUTE, TOO...



Source: PACKAGING's Consumer Survey

How much more will consumers pay for a product in an easily recycled package? Most said they would pay something extra.

...AND THEY'LL SORT THEIR TRASH



Source: PACKAGING's Consumer Survey

By a huge margin, consumers said they would sort used packaging by material for curbside collection.

wanted in whatever way was easiest.

Nowadays, though, the consumer is coming to realize that an effortless lifestyle is expensive.

To find out how and by how much opinions about packaging are evolving, PACKAGING magazine annually conducts a nationwide Consumer Survey. Each year since our survey began in 1985, PACKAG-

ING has added questions about the impact of packaging on the environment. Each year we have seen the problem of municipal solid waste looming larger than the year before.

With help from a well-known opinion-research firm, PACKAGING has mailed survey questionnaires to thousands of households selected according to irrefutable

demographic criteria. Opinions expressed by our sample group are representative of consumer attitudes in general.

Depending on where you stand on the solid-waste issue, the following statistics will be either reassuring or downright scary. Some of them indicate a troubling lack of information.

In 1989, PACKAGING's Con-

sumer Survey contained this question: "How important is the recycling of used packaging to you?" The reply from more than three-quarters of the respondents was "extremely" or "somewhat."

During the years that we have asked our sample groups how often the recyclability of a package swayed them from one product to another, the percent-

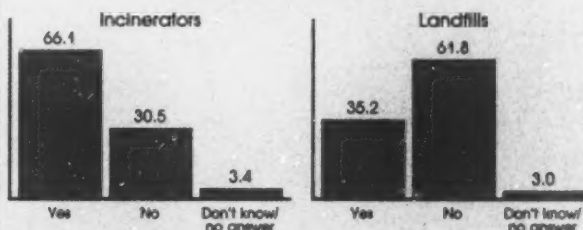
THEY ALSO FAVOR 'BOTTLE BILLS'



Source: PACKAGING's Consumer Survey

Of the consumers who live where there are no deposits charged on non-refillable soft-drink and beer containers, 53.9 percent would vote in favor of them.

SUPPORT IS HIGHER FOR INCINERATORS THAN FOR LANDFILLS



Source: PACKAGING's Consumer Survey

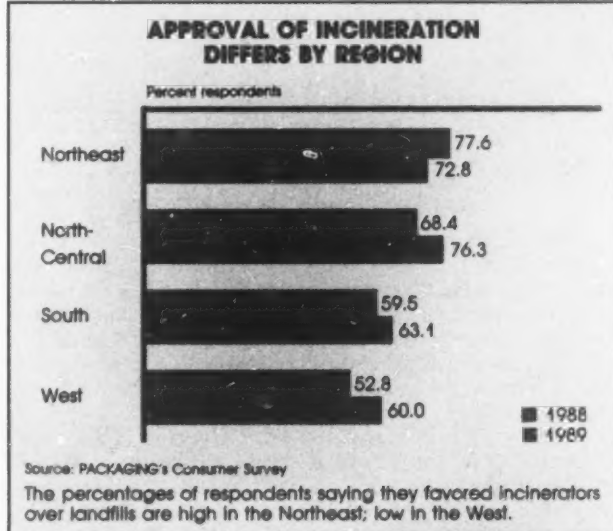
Two-thirds of the survey respondents said they would support building a new incinerator in their community, but only one-third would support locating a new landfill nearby.

age of consumers replying "often" has grown—from less than nine percent to more than 17. Meanwhile, the "never" responses have fallen steadily.

Which types of packaging materials do consumers think are easy to recycle? The order in which consumers ranked them—aluminum, paper, glass, steel, plastic—has not changed in two years. Neither has consumer opinion about the accomplishments of material manufacturers. In 1989 as in 1988, roughly 70 percent of our respondents said they believed aluminum manufacturers were doing a "very good" or "good" job of recycling packaging materials. Manufacturers of paper, glass, steel and plastics followed in that order.

Who wants to pay?

When we asked our 1988 and 1989 sample groups who should fund new recycling programs, the respondents pointed at manufacturers of packaging materials. According to the consumer, then, it's not Coca-Cola that should pay, but the companies that make Coke's bottles. PACKAGING of course cannot agree—at least not entirely. The responsibility for funding solutions to the trash prob-



lem is everyone's. The consumer/taxpayer will have to contribute.

We wanted to know whether our respondents in fact realized that the cost of such package recycling would eventually trickle down to them. So in another question PACKAGING asked consumers how much more, if anything, they would be willing to pay for a product in an easy-to-recycle package vs. one in a package that was difficult. The largest percentage of respondents said they would pay something extra. So, the consumer appears to be saying, if packagers must pay

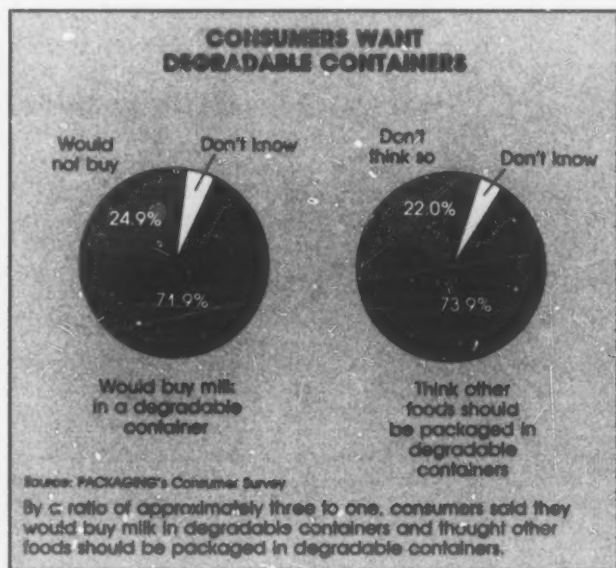
IRONIES: STICKS AND STONES #2

Most people call them consumers. This packaging executive called them disposers.

It's true, we guess. Consumers are people who dispose of packaging. But they are, more accurately and more fairly, the people who consume the product... and the packaging.

There's a point at which putting a favorable "spin" on controversial topics does nothing but make everybody dizzy.

Consumers say they will contribute money, time and effort in dealing with solid waste



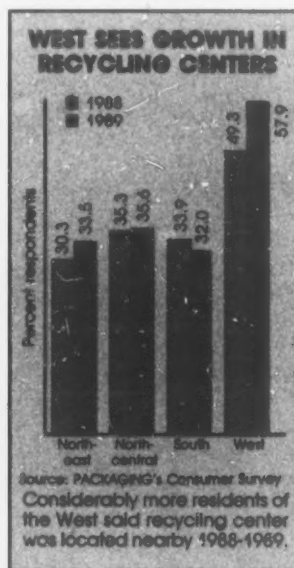
and therefore must raise prices to do so, I'll understand.

Consumers seem agreeable to contributing time and energy as well. Asked whether they would sort used packaging materials by type for curbside pickup, fully 83 percent of our survey respondents answered affirmatively.

A majority of consumers also appear to approve of deposits on nonrefillable soft-drink and beer containers, probably because they believe they will get their money back. Of the 69 percent who said their state did not presently require a deposit on bottles and cans, more than half said they would vote to enact such a law. Suppliers of beer and soft-drink containers, bottlers and recycling proponents remain opposed to such programs. There's a multitude of good reasons.

Bury or burn?

Consumers are more likely to support construction of a new incinerator in their community than a new landfill. The land-poor Northeast is



home to the highest number of incineration supporters, yet only there did approval for landfills increase 1988-1989. In the West, where air quality is a concern and relatively few respondents favor incineration over landfilling, preference for incineration nevertheless grew over the past two years.

The Northeast has attracted media attention because of its solid-waste problems, proposals and programs, but it was residents of the West who said they had best access to recycling centers. Overall, the percentage of respondents saying there was a recycling center near their home rose significantly 1988-1989.

Raging debate among experts aside, consumers seem attracted to the notion of package degradability. Asked if they would buy milk in a photodegradable or biodegradable container if they could, nearly three-quarters of the respondents answered yes. Nearly the same percentage told us they thought other food products should be made available in degradable containers.

Does the consumer realize that landfills are designed to keep things from degrading? That photodegradable trash would have to be left out in the sun to decompose? That biodegradability is dependent upon the presence and activity of microbes? We don't know—we didn't ask. We have reason to believe, though, that the answer to all three questions is no. The consumer erroneously sees degradability as the simplest of all solutions—one requiring no new taxes, rises in prices or expenditure of energy.

What does this all mean to the packaging field? For one thing, the results of PACKAGING's surveys reveal a need for new education programs. For example: The consumer appears a bit too ready to blame packagers for the trash problem and hold them responsible for funding solutions. That affects more than purchase decisions in the supermarket; it also determines in part which proposed restrictions on packaging will be enacted by the public sector, which is, after all, answerable to consumers, also known as the taxpayers.

We at PACKAGING do not see results of our Consumer Surveys as a mandate to the packaging field. The opinions expressed deserve some thought but should not in themselves force a change in company or government policy.

Happily, the surveys reveal that consumers are willing to be a part of the solution. They say they will contribute money, time and effort in dealing with solid waste. It appears as though they simply need to be pointed in the right direction and shown how they can do the most good.

—Greg Erickson



PACKAGING: SPECIAL REPORT

LIVING ON TOP OF IT

Modern landfills entomb trash,
just as they are designed to do



The magazine editor's mouth is hanging open. An industry executive seated next to him at a business lunch is doing all the talking. "There's lots of land for landfills," says the executive, "especially in Montana. We could ship garbage out there by truck for years and years."

Montana and contiguous states do indeed have a lot of land. It could in fact be used for landfills. But it is not located near the source of most waste.

Staten Island has a lot of waste. A landfill there that began as a dump in 1948 will stand 200 feet taller than the Statue of Liberty by 2005. It will be the tallest mountain on the Atlantic Coast between Florida and Maine.

The densely populated

states of Florida, New Jersey, New Hampshire and Massachusetts will close almost all their landfills within the next decade.

Roughly 40 percent of all the landfills in the United States will reach capacity by 1995.

Yet 85 percent of the waste we generate still goes to landfills, and in most parts of the country that method of disposal is the most economically feasible.

Trash and King Tut

What happens in a landfill conjures up images of Tutankhamen. Think about it: If the Egyptian king had used plastic bottles, glass jars, metal cans and paperboard cartons, those packages would be in museums to-

day, 30 centuries later. The ancient Egyptians knew how to bury things so they would stay intact for a long time.

So do we. William Rathje, professor of archeology at the University of Arizona and the nation's leading garbologist, digs down deep into landfills and comes up with some amazing stuff. He and his students find hot dogs with mustard still on top, fast-food fried chicken complete with all the original herbs and spices, and newspapers still readable even though they were buried back when Franklin and Eleanor lived in the White House. Landfills are designed to virtually entomb their contents.

Only after a potential landfill site passes stringent tests of ground water

sources, soil composition and access routes, among other factors, can construction begin. The bottom and sides of the site are lined to ensure that liquids do not trickle into groundwater supplies. At the end of each dumping day, a layer of soil is spread atop the compacted waste.

We'll never get buried

Says Harvey Alter of the U.S. Chamber of Commerce, "An important misconception is that everything that goes into a landfill should be biodegradable. If this were true, more leachate (the foul and potentially dangerous water seepage) would be produced, gas production (like swamp gas from decaying matter) would be higher, and there would be no stability; that is,

Some items that are theoretically recyclable or incineratable will continue to be landfilled for years to come.

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Incineration is trash in, ash out, so material recovery is prudent

IRONIES: EUPHEMISTICALLY YOURS

During a recent waste-related program attended by packaging professionals, we heard of a survey showing consumer support for "energy-recovery facilities."

We had to wonder how the results might have differed had consumers been told that energy-recovery facilities burn trash.

At another such meeting, a builder of municipal waste incinerators repeatedly referred to his products as "thermal destruction units."

The Pentagon could not have phrased it more obliquely. Why not call an incinerator an incinerator?

reusable steel and aluminum packaging, from the waste stream before they get to the incinerator.

The greenhouse effect

Another real problem for incinerators is the perception that they pollute the air. Sophisticated systems for protecting air quality are in use and many incinerators around the world are burning

cleanly. But fear of harmful emissions remains a hurdle that's tough to jump. The Bush administration presently is fighting a Senate bill that would restrict emissions so severely that incinerator construction could come to an abrupt halt.

Even carbon dioxide, once thought harmless, is causing concern. According to William K. Riley, administrator of the U.S. Environmental Protection Agency, "Carbon dioxide in the atmosphere has increased 25 percent in 100 years. Something significant may be occurring. We dare not ignore it. EPA scientists estimate that if we don't act to reduce greenhouse gases, worldwide temperatures will rise at least 2 to 3° C. by the year 2000. Such an increase could bring enormous changes in climate, rainfall, agricultural productivity and sea level."

One obvious method of reducing the carbon dioxide, air pollutants and ash that come out of waste incinerators is to reduce the amount of trash that goes in. That presents a difficult dilemma. All too often, waste-to-energy plants are not compatible with material-recovery facilities but competitive. A corrugated case or a plastic bottle can be



Unobtrusive incinerators like this one are in wide use throughout the United States. But the U.S. lags far behind Europe and Japan in incineration of municipal solid waste.

either recycled or incinerated but not both. Clearly, if material recovery is to be attempted at all, it must occur ahead of the incinerator.

In the April 1987 publication *Mining Urban Wastes: The Potential for Recycling*, Cynthia Pollock Shea, senior researcher with the nonprofit Worldwatch Institute, says that by ignoring recycling, cities are apt to overbuild incinerators. Excess capacity, she says, "curtails the incentive to reduce and recycle wastes both now and in the future. Only after designing the largest practical recycling program should calculations of incinerator capacity begin."

Advocates of recycling also argue that burning plastics squanders resources, even if energy is extracted and put to use. Since so many non-plastic items must be removed from municipal trash prior to incineration anyway, they ask, why not go a step further and remove the plastics for reuse?

Recycling indeed has the potential to reduce the amount of incineration needed. Once everyone understands that incineration is best employed only after recyclables have been removed from the waste stream, all concerned will breathe a little easier.

—Greg Erickson

HOW SERIOUS A RISK FROM INCINERATORS?

The National Solid Waste Management Association reports that Americans are uncertain about the risks posed by municipal waste incinerators. A survey of 1,000 adults in the U.S. found that 33% of respondents said they were "very serious" about the risks of incinerators, 22% said they were "somewhat serious," 16% said they were "slightly serious," and 29% said they were "not serious at all." The survey also found that 33% of respondents said they were "very serious" about the risks of ash, 22% said they were "somewhat serious," 16% said they were "slightly serious," and 29% said they were "not serious at all."

they thought the risk of air pollution from incinerators was "very serious" or "somewhat serious." The survey also found that 33% of respondents said they were "very serious" about the risks of ash, 22% said they were "somewhat serious," 16% said they were "slightly serious," and 29% said they were "not serious at all."



Source: National Solid Wastes Management Association, 1989

Feelings about risks posed by incinerators vary greatly. Adults polled recently were divided on the subject of ash and air pollution as potential problems for the environment.

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PACKAGING®

THE CAHNERS MAGAZINE FOR DECISION-MAKERS/SEPTEMBER 1989

READERS CHOOSE 1989 INNOVATOR AWARDS

WestPack '89
Planning Guide

What's New In
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PACKAGING NEWS

Materials Survey Reveals Changes

Reader's poll points to new user trends

In the spring of 1989 as in years past, PACKAGING polled its readers to determine which containers and materials they were using and whether they would use more, the same amount or less in the coming 12 months. This exclusive study provides proof that the market is changing in subtle but significant ways.

The full survey, available from PACKAGING, contains information on SIC categories 20 through 39. In this condensed report we'll discuss some findings from the entire group while concentrating on the two largest categories: SIC 20 (foods and beverages) and SIC 28 (pharmaceuticals and cosmetics).

The coming year is likely to be a period of slower growth. The percentages of respondents planning to use more jars, cans, cartons and bottles in 1990 have fallen generally from 1989. The percentages planning to use the same amount have risen.

Some foods-and-beverages packaging concepts probably will enjoy good growth. Single-serve packaging is the most widely applied concept: 15.6 percent of foods-and-beverages respondents report use of it. Of those users, more than two-thirds say they expect to increase their application of single-serve packaging in 1990.

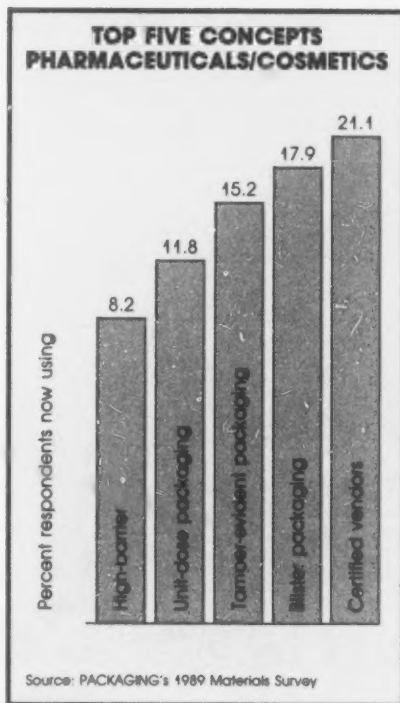
A large percentage of foods-and-beverages respondents report using controlled-atmosphere/modified-atmosphere packaging. And nearly three-quarters of them say they plan increased application of CAP/MAP technology and materials in the coming year.

Although PACKAGING magazine's 1989 Consumer Survey (June) revealed what could be interpreted as a leveling off of consumer use of microwave ovens, foods-and-beverages respondents to our Material Survey express continued enthusiasm.

Also in our Consumer Survey, consumer respondents said they felt packagers were doing a good job in protecting them from product tampering. The reason for that shows up in our Materials Survey: Use of tamper-evident packaging remains high.

Reliance on certified vendors also is likely to increase significantly—especially among the pharmaceuticals-and-cosmetics group. Nearly 70 percent of present users in this group expect their use of these vendors to increase in 1990.

Pharmaceuticals-and-cosmetics respondents also foresee increased use of blisters, unit-dose packaging, high-barrier packaging



and tamper-evident techniques in the coming year.

Of the nearly 60 percent of respondents presently using paperboard folding cartons, close to half say they will increase their use of them in 1990. Also enjoying high current usage rates are pre-made and multiwall bags and pouches; polyethylene jars and bottles; plastic tubs, cups and trays; and paperboard trays.

Projected usage rates are falling for some containers. For example, a fairly high 11.7 percent of the '89 aerosol users say they expect to use fewer aerosols in 1990 than they did in this year. A high 15.4 percent of respondents say their use of aluminum trays will drop in 1990.

Flexible packaging materials in general appear likely to enjoy excellent growth in the coming year. Our respondents predict significant increase in their use of metallized film. Also, although the number of current users of EVOH and PVDC is small, a relatively high percentage of them say they expect to use more of these barrier materials in 1990. Flexible paper and polyethylene, already enjoying wide use, also should keep on growing through 1990, as should other flexible co-extrusions and laminations.

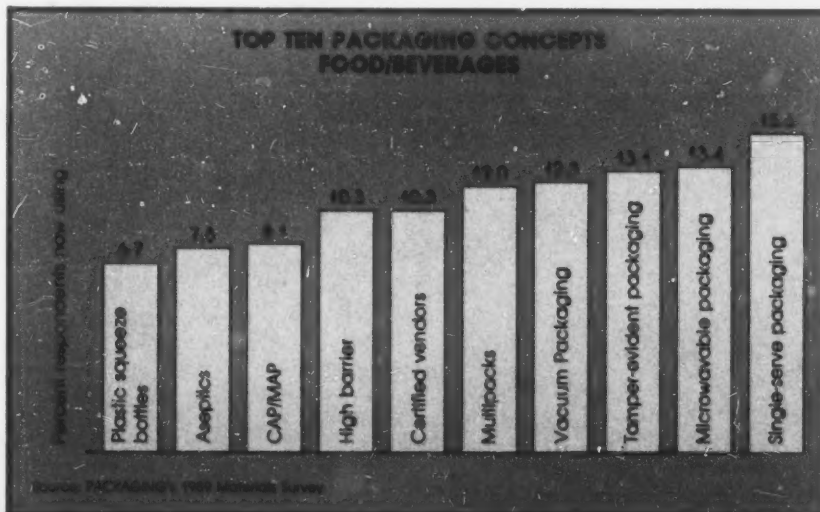
Although the percentage of users of tamper-evident closures among our SIC 20 and 28 respondents has held fairly steady year to year, users expect substantial growth here in 1990. More than 61 percent of foods-related users and 55.4 percent of chemicals-related users say their use of tamper-evident closures will increase.

When it comes to labeling, one material rises to the top: Paper is presently most prevalent. Of the competing application techniques, pressure-sensitive labeling is currently in widest use and appears likely to grow fastest.

In the area of case packaging/shipping materials, corrugated is the material used by the highest percentage of respondents. Almost two-thirds say they presently use corrugated bulk boxes; more than half say they use corrugated cases. Other high rates of both present and projected use are reported for high-strength and pre-printed corrugated.

But of all materials used in case packing and shipping, it is the lowly wooden pallet that's used most extensively—by almost 70 percent of all respondents. Stretch wrap for unitizing loads stacked on those pallets also is used by a big percentage of respondents, who predict significant growth in their reliance on it through 1990.

Our respondents foresee environmental concerns growing and increasingly affecting their use of various packaging materials. Asked whether such considerations will affect them in 1990, 57.5 percent of all respondents say yes.



ENVIRONMENTAL NEWS

Somebody Still Wants Newsprint

Despite glut, there's a packaging purchaser

Sealed Air Corp. has teamed up with the city of Greensboro, N.C., in a recycling effort to keep millions of pounds of waste newsprint out of the city's landfill. Fiber from the old newspapers is used in making Sealed Air's padded mailers, produce pads and furniture pads.

The recycling program, promoted by the Greensboro-area Junior League, encourages citizens to bring newspapers to designated dumpsters. Picked up by city trucks, the material is delivered to Sealed Air's plant in High Point.

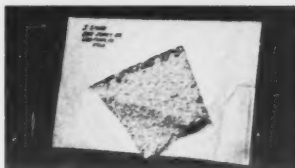
Don Smith, Greensboro's superintendent of sanitation, says the program has saved the city \$40,000 in landfill tipping fees and generated revenue totaling \$120,000. More than \$7,000 from the program has been donated to charity.



Valueless in many parts of the country, old newspapers are still being collected in Greensboro. Recycled newsprint is used as cushioning in kraft-paper mailers manufactured by Sealed Air Corp.

In many parts of the country, old newsprint is valueless. Papers bundled by homeowners for curbside pickup in more than a few communities are not being recycled as was originally intended but are going to landfills instead. Some experts in the field of recycling are advising organizers of new curbside programs to exclude newsprint until the glut comes to an end. More than a few established programs have stopped collecting it altogether. No one wants it.

Sealed Air, however, plans to continue buying newsprint from the city, and at prices well above



the market rate. Says Bill Armstrong, the company's technical development manager, "This represents one of the many steps Sealed Air will take toward contributing solutions to environmental and solid-waste problems."

In addition to the padded mailers, Sealed Air also manufactures kraft-paper packaging products made of 100 percent recycled materials.

The amount of material recycled by the company in Greensboro, according to a company spokesperson, would fill a soccer field with bundles 10 feet high.

Book Focuses On Plastic

Rutgers describes collection, markets

The Center for Plastics Recycling Research at Rutgers, the State University of New Jersey, has published a manual focusing on the science and economics of including post-consumer plastic beverage bottles in multi-material curbside recycling programs.

According to Wayne Pearson, executive director of the Plastics Recycling Foundation, a group that was instrumental in establishing the CPRR, the manual "confirms that the inclusion of plastic beverage containers in a curbside collection program along with glass, metal and aluminum containers is economically attractive." He adds, "Research and commercial experience indicate that plastic beverage containers will become a major recyclable material in curbside programs nationwide in the very near future."

The 200-page manuals, priced at \$60 are available from the Center for Plastics Recycling Research, Rutgers, Bldg. 3529 Busch Campus, Piscataway, N.J. 08855.

Video Promotes Curbside Plans

Tape touts benefits to policymakers

The Glass Packaging Institute has released a new video promoting comprehensive curbside recycling. Says Lewis D. Andrews, Jr., president of GPI, "We want to show state and local officials how to encourage their citizens to recycle."

Andrews continues, "Comprehensive curbside recycling programs, such as the ones profiled in the video, are diverting as much as 35 percent of municipal solid waste from landfills."

The new video complements GPI's workbook, *Comprehensive Curbside Recycling: Collection Costs and How To Control Them*. Both the booklet and the video are available from the Glass Packaging Institute, 1801 K St. N.W., Suite 1105-L, Washington, D.C. 20006.

Some Consumers Still Favor Deposit Laws

Westerners like the idea most of all

Container-deposit laws—often criticized by bottlers and recycling advocates alike—appear to be a popular idea with consumers.

PACKAGING magazine's 1989 Consumer Survey shows that a

majority of consumers in the Northeast, North Central and West regions of the U.S. who live in no-deposit states would vote to enact deposit laws. Leading all regions is the West, where 60.7 percent of consumers would vote for container deposits if they could.

Apparently, consumers feel they will get their deposits back.

However, in Michigan, for example, unclaimed deposits total millions of dollars. These funds can't be spent by the state or anyone else—they're in legal limbo.

A full report on consumer opinions regarding solid waste as it relates to packaging appeared in PACKAGING's August issue, which was devoted almost entirely to the trash problem.



Users of Flexibles Play It Safe

Packagers consider all options in their search for cost-effective product protection

By Greg Erickson
Senior Editor

Call it pragmatism. Despite all the hoopla and hyperbole about ultra-high barrier co-extruded films, food processors are conservative in their use of flexible packaging materials.

Resin producers and film suppliers interviewed for this story agree with results of PACKAGING's 1989 Materials Survey when it comes to flexible-packaging technologies: Packagers don't rush into co-extrusions so long as laminations and metallization provide sufficient product protection.

Users of flexibles are examining their needs and the cost of every potential benefit of co-extrusions... with more than a little healthy skepticism. As one supplier of resins and films puts it, "Co-extrusion is still an art, not a science."

No doubt about it, multi-layer films have made great strides in packaging. Among makers of confections and salty snacks, for example, polypropylene co-extrusions are widely considered not only fashionable but indispensable. These are highly complex structures. Yet, says a supplier of flexible materials to this market, "Five- and seven-layer co-extruded films just aren't happening."

A major factor may be the difficulty of orienting polymeric-barrier co-extrusions. One plastics professional says he believes oriented co-extrusions of films having as many as 11 layers will eventually

prove feasible. But before that can happen, he says, improvements will be necessary in both tie-layer polymers and co-extrusion die technology. For the present, he adds, OPP barrier-layer structures should be considered "long-term development activities."

Another factor, surely, is that pragmatism. Do snacks and confections really need all the protection that would be offered by 11-layer barrier films? Probably not.

Shelf life vs. cost

In considering the cost of competitive high-barrier materials, end users are establishing exact shelf-life requirements and specifying barriers no greater than needed to meet those requirements. "It used to be," says a film supplier, that in estimating needed shelf life, "you looked at 30 days and you looked at a year. Now the industry is becoming more sophisticated. Everyone's saying to their own development department, 'Make a barrier that will give a shelf life of this particular length.'" A result is that extremely complicated structures are sometimes viewed as superfluous.

End users are scrutinizing single-layer films, too, and judging them on the basis of performance vs. price. Polyester, for instance, is more expensive than oriented polypropylene, so polyester people sell their material on the basis of product-protection superiority. Sometimes that works to the advantage of polyester; sometimes it



Metallized film protects the flavor of a new line of snack crackers. The tough film also resists punctures from the crackers' sharp corners.



Candy maker Brach's simplified the packaging of its non-chocolate confections by moving to an acrylic-coated OPP, which until recently was available only in Europe.

doesn't. Says a polyester source, "We've often built our hopes on a lot of products [staying with polyester] and then six months later found that they're in OPP. We're continually seeing polypropylene replacing us and us displacing them. That's where the battle lines are drawn."

Lamination leads

So if co-extrusion is not the dominant technology, what is? PACKAGING's 1989 Materials Survey shows that lamination is the flexible-packaging concept in widest use among our readers.

Much of that lamination includes aluminum foil. Says a spokesperson for a giant in the plastic-resin business,

"We're in both markets—adhesives for co-extrusions and for lamination with foil. It's still true that foil lamination for the money is economical and effective. That will stay with us for a long time. When push comes to shove, polymeric barriers are still more expensive." Not surprising, then, is his company's recent introduction of four new adhesive polymers. All are said to provide excellent adhesion to traditional lamination substrates.

Success of the retort pouch is responsible in part for substantial growth in laminations including PP, PE, foil and such adhesives. These pouches are increasingly taking market share from cans in restaurant and institu-

tional packaging. On the consumer level, retort and hot-fill pouches are used for fillings and sauces as parts of meal "kits." Trend-setting makers of pizza and macaroni-and-cheese mixes who originally used cans for their sauces have moved to pouches.

Also finding long-awaited acceptance in institutional applications is VLDPE, very low-density polyethylene. Bag-in-box packaging of syrups is just one market for this material, which is particularly resistant to tears, punctures and impact ruptures.

Controlled-atmosphere and modified-atmosphere applications of film still hold promise, though they are growing less quickly than seemed likely awhile back. The obstacle, according to one film source, is not the technology of film manufacture or the price of materials. "It's the way food processors have to distribute food," he says. "The equipment is there, the

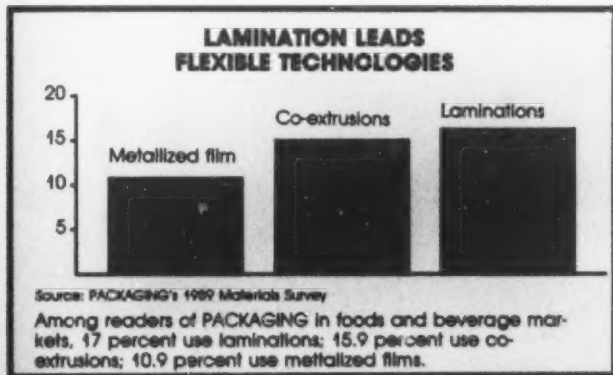
vey. It's a technology that remains immensely popular with packagers of products needing a combination of high barrier and top graphic appeal. Also, it's finding increased use where graphics aren't significant. A leading maker of salted snacks and crackers has introduced a new line of crackers in folding cartons, inside of which are bags made of metallized polyester.

In answer to growing demand, suppliers of metallized films have increased their capacity considerably. Metallizing equipment is running wider and faster, leading to savings for end users.

A supplier of metallized films is now touting its recent introduction of sealant-grade metallized OPP films—designed to improve overall machinability in snack-packaging applications. One film in this family provides an improved bonding surface, making it especially well-suited to extrusion lamination.



Laminated pouches such as these for cheese and tomato sauces, are gradually replacing some cans in meal "kits." Similar laminates are growing in use in the foodservice industry.



co-extruded barrier is there, the technology is there. But CAP just can't overcome the huge foods-distribution system in the U.S." It's another situation in which high-tech capabilities aren't sufficient on their own to win over cautious, skeptical packagers.

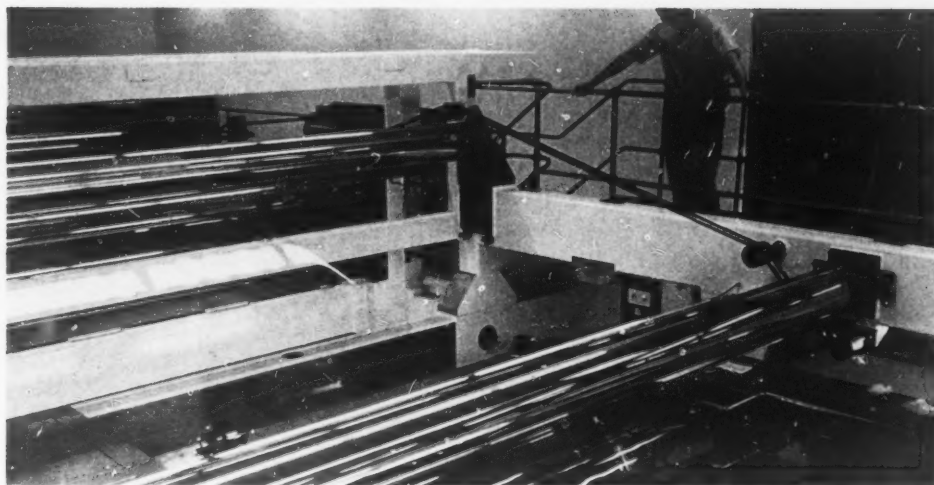
Metallization shines

Metallization closely follows co-extrusion as a leading flexible-packaging concept in PACKAGING's Material Sur-

Polypropylene in coated form is simplifying things for a major confectioner. Jacobs-Suchard, owner of Brach's, recently switched from as many as 25 different structures—polyethylene and co-extruded polypropylene among them—to acrylic-coated OPP film for its recently repositioned non-chocolate candy.

The company chose that film for its excellent flavor and aroma protection as well

Lamination is the flexible concept
in widest use among our readers



Film destined for primary-packaging application is monitored by an employee of a leading polyester supplier.

as printability. Brach's acceptance of the acrylic-coated material—widely used in Europe—marks the first domestic application. At the time of this writing, the U.S. version of the film was in controlled sales to Jacobs-Suchard.

Also in use overseas is what's called normal butyl acrylate, or NBA. Similar to EVA, NBA is increasingly used by European packagers for its good adhesion to flexible materials PET, BOPP, nylon and PVDC as well as to clay-coated board. Its heat stability up to 600° F. gives NBA a wide sealing range and allows for increased line speeds.

More expensive than EVA,

NBA seems likely to find application domestically in laminated film for frozen and fresh food, bag-in-box, cereals and health-care disposables. At present, though, this material does not have FDA approval.

A giant petrochemical company recently introduced a new elastomeric concentrate designed to improve the toughness of high-density and linear low-density polyethylene films. Already, films employing this additive have found application in health-care, personal-care and food packaging.

Other advances in ethylene-based materials, according to one of the biggest players in plastic resins, will soon

lead to new forms of HDPE that will in turn make possible extremely light and strong films. From the same company comes the promise of new propylene-based materials. Among them, says a company spokesperson, will be film resins having broadened heat-seal ranges, making them particularly beneficial in use with multilayer BOPP structures.

According to another resin expert, the blending of diverse polymers and polymer-alloying techniques will raise the stiffness and moisture-barrier capabilities of OPP films. And at least one big supplier of polypropylene resins is currently boasting of the work it has been doing with films that print well with water-based inks. Use of these inks so far is limited. But pressure to limit use of solvent-base inks is accelerating development of such films. ■

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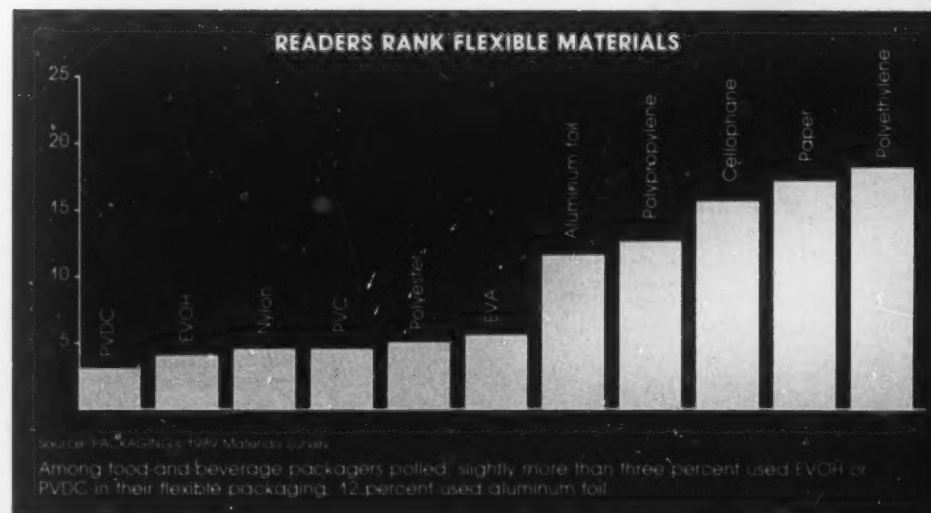


GREG ERICKSON

Senior Editor

"Clear barrier materials, growing rapidly in use, still have a way to go to overtake trusty old

aluminum foil, the demise of which has been predicted for years now."



PACKAGING

THE CAHNS MAGAZINE FOR DECISION-MAKERS/OCTOBER 1989

Exclusive Floorplan Guide
To WestPack '89 Show

Computerized Line Gives
Packager Total Control

The Big Issues Facing
Packaging: An IPW Panel



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ENVIRONMENTAL NEWS

Americans Will Pay Extra For 'Green' Products

Design firm reports survey findings

According to a new survey, more than three-quarters of all American consumers will pay extra for "green"—that is, recyclable or biodegradable—packaging.

The Michael Peters Group, which bills itself as the world's largest independent design and new-product development consultancy, hired the polling firm of Penn and Schoen to conduct a nationwide telephone survey of 1,000 adults last summer. The survey revealed that 49 percent of consumers polled would pay up to five percent extra for products in packaging that was degradable or recyclable.

Dorothy MacKenzie, who heads MPG's new-product development division, says, "We believe that just as the Eighties saw a proliferation of 'lite' products designed to meet growing consumer health awareness, the Nineties will be the decade of 'green' products—products designed, packaged and marketed with a strong environmental per-

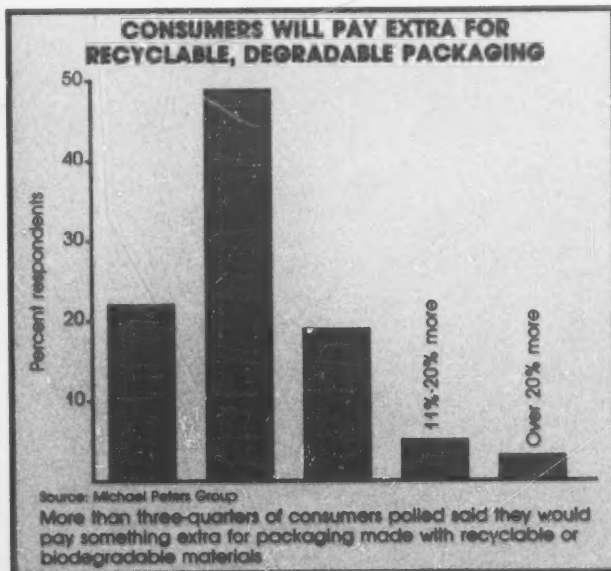
spective."

A similar MPG survey of consumers in Canada showed slightly less willingness to pay more for "green" packaging: About three-fifths of the Canadian respondents said they would spend something extra.

Among other findings, MPG's study shows that 89 percent of Americans are concerned about the environmental impact of the products they purchase; 53 percent declined to buy a product over the past year because of their concern about the possible environmental effect of the product or its packaging; 77 percent say their purchase decisions are affected by a company's reputation on environmental issues; 11 percent say they think business is doing a good job of safeguarding the environment.

On the last point, Michael Peters, chairman and creative director, says, "While the public believes that corporate America is generally aware of the environmental impact of its products, they don't see that awareness translating into action."

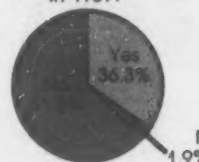
Also in the U.S. study, 84 percent of respondents say they feel the federal government should enact legislation requiring manufacturers to use biodegradable or recyclable packaging. Says Peters, "The 'greening' of the American consumer represents both a challenge and an opportunity for anyone doing business in the American marketplace. Clearly," he adds, "it's the smart marketer who will choose to act before legislation makes change imperative."



ENVIRONMENTAL CONSIDERATIONS GROW IN IMPORTANCE

Percent of all respondents

Did they affect purchases in 1989?



Will they in 1990?



Source: PACKAGING's 1989 Materials Survey

Environment Affects Materials Use

Study reveals growing concern

A recent survey of PACKAGING magazine's readership shows packagers increasingly selecting materials and supplies on the basis of environmental concerns.

Asked whether environmental considerations affected their materials use in 1989, only 36.3 percent of our respondents said yes. Asked whether those considerations would affect materials use in 1990, 57.5 percent said yes.

A full report on the survey appeared in our September issue.

City Of Berkeley Calls For Precycling

Shoppers urged to shun plastic packages

The goal is to encourage consumers to make environmentally wise product-purchase decisions while in the store. That's enviable. But the City of Berkeley, Calif., is going about it in a way that erroneously endorses the concept of biodegradability and unfairly criticizes plastic packaging for not being degradable.

A poster published recently by City of Berkeley Recycling introduces the new program this way:

"We call it precycling. Sometimes the answers to our biggest problems are right within our reach. In this case, one solution to our waste problem may be in what we reach for on the supermarket shelf.

"We've spent years directing our attention to the 'recycling' of consumer products. This year we decided to take a fresh look at the problem, and we came up with this both obvious and overlooked idea: *precycling*."

The poster goes on, 'precy-

cling means making intelligent, environmentally sound decisions at the store. Reduce waste before you buy!" So far, so good.

"Packaging accounts for one-third of all solid waste. Packaging is the fourth largest industry in the United States. If we cut down on the *quantity* of packaging we buy—that is, buy products with less packaging or buy fewer products—we can reduce the amount of garbage we create. Likewise, if we make our purchasing decisions based on the *kind* of package the product comes in, we can reduce garbage by buying recycled or recyclable containers."

All right. Now here comes the troubling stuff:

"Paper and cardboard are preferable container materials because they break down, or degrade, over time. Plastic does not. Items are packaged for many reasons—for freshness or cleanliness, to prevent breakage or theft, or to catch your eye and make a sale. Choose the package that meets your needs and resist the package that doesn't—especially if it's plastic."

There's more. "Technology designed for burning plastic for energy," says the poster, "is potentially dangerous and may not be cost effective. In other words, we're almost certainly stuck with our plastic waste."

For more information on the Precycling program, call (415) 644-8631.